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Tungchwan Copper Mine

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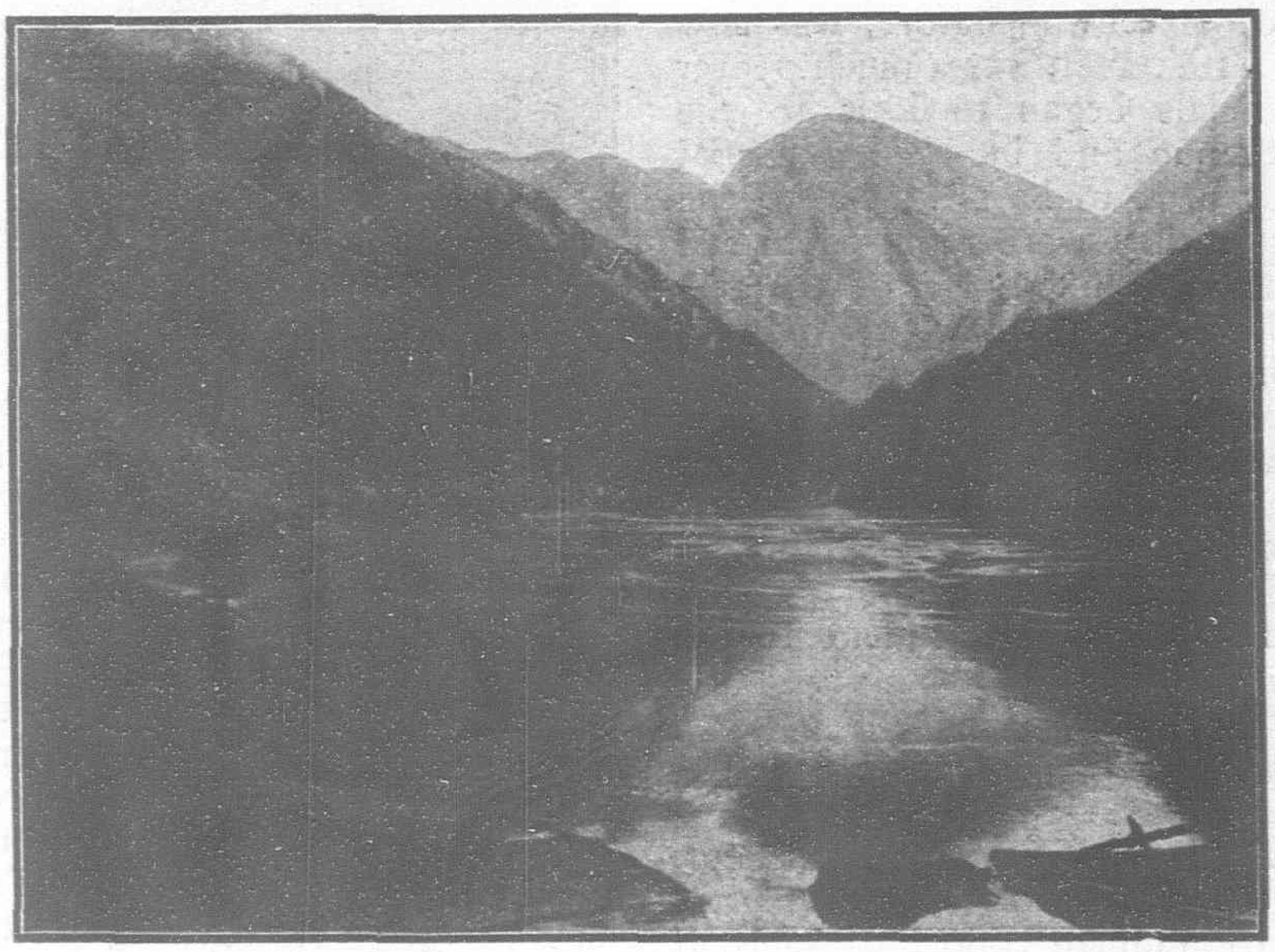
TUNGCHWANFU, YUNNAN, COPPER MINES

[BY V. K. TING, DIRECTOR OF THE GEOLOGICAL SURVEY, CHINA.]

In 1914 the writer was sent by the Ministry of Agriculture and Commerce to Yunnan to study the mineral prospects in the Eastern part of the province through which the projected Chingchou (in Canton)—Chungking railway was to pass. The greater part of the time was devoted to that purpose, but as the famous copper mines in Tungchwanfu are of great economic interest, though they lie rather far away from the projected railway, I paid them a short visit. Geologically the region proved to be very complicated, and such scientific results that could be obtained by a hurried examination will eventually be published in the Bulletins of the Geological Survey.

Topography and Geology



THE UPPER YANGTZE NEAR YENTSIN

The mines are officially divided into five groups, namely Tangdan, Loshüe, Tasui, Moulu and Tiechang. Except the last locality, which is on the west side of the Upper Yangtze, near the Szechuan border, the four other groups are situated between the Yangtze and its tributary, the Hsiao-kiang, to the south-east of Tungchwanfu city. The accompanying sketch map on a very small scale shows their relative positions.

In order to understand the origin of the deposit it is necessary to look into the larger features of tectonic geology. The two provinces of Yunnan and Szechuan are separated, not by the Upper Yangtze as one would expect, but by a range of mountains known as the Lunanshan, which is the Southern extension of the Taliangshan range. The range as a whole runs N. N. E.—S. S. W. with a steeper escarpment on the east side. The higher part of the mountain consists of Permean and Upper Carboniferous limestone underlaid by sandstone, clay and limestone of Carboniferous age. These at first dip more or less constantly towards W. W. N., but as we descend further toward the Yangtze numerous faults and shearing planes, mostly parallel to the strike, are met with, and the rocks become more or less metamorphosed. Scattered through these metamorphosed palæozoic sediments, and the limestone above them, are numerous but small irregular veins of sulphide of copper (chiefly chalcopyrite). These deposits are worked in more than 20 places, with Tiechang as their centre. They are all on the west side of the upper Yangtze which has cut a very deep gorge through the country, for the higher ridges are considerably over 10,000 feet above sea level, while the absolute height of the river bed is less than 2,000.

Near the river bank faulting and shearing become still more complicated and a salt well (Yentsing) situated on the left bank indicates the presence of upper Permean formation which on the right bank is thrust against beds of lower palæozoic age. Going from the river eastward extremely steep slopes have to be climbed before the watershed between the Yangtze and the Hsiao-kiang is reached. This is highest in the South where a massive range capped by Permo-carboniferous limestone, running in the direction W. W. N.—E. E. S., forms the Southern limit of the metallogenic province. This mass is known under different names, such as Tashüeshan, Fongmoling, and Kiaotingshan. Towards the North the ground gradually becomes lower until we reach the village of Shiangpiling where the Hsiao-kiang empties itself into the Yangtze. Within the triangular area bound by the two rivers and the Tashüeshan there are sandstone, shale and limestone varying from carboniferous to Cambrian in age, more or less dynamically metamorphosed so that the individual formations are difficult to distinguish. They are intruded by numerous gabbro masses which can probably be correlated with the gabbro intrusions I found in Hweilichou in Szechuan, where they are intimately associated with the copper deposits.

Character of the Deposits

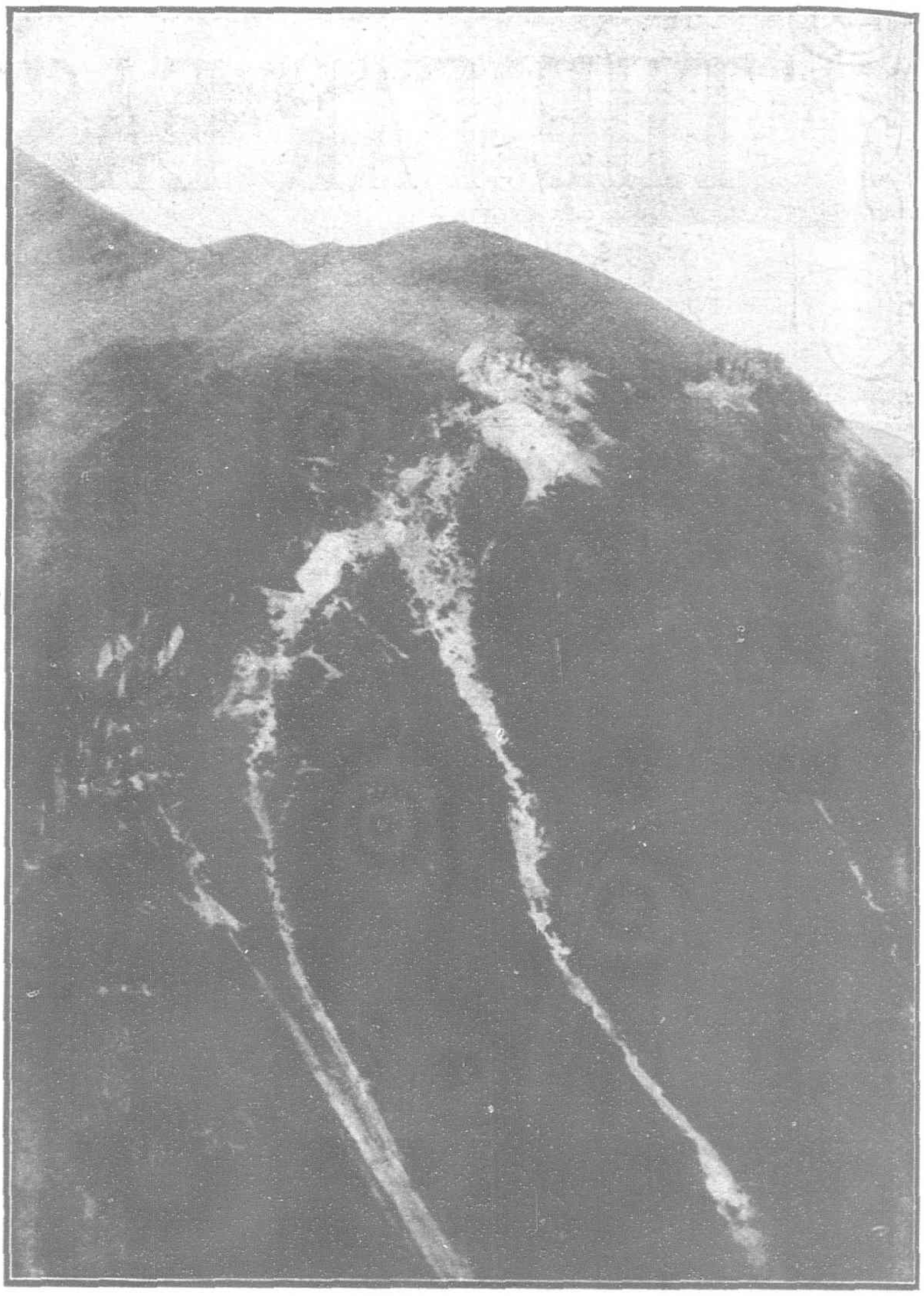
The deposits are found in two different kinds of rock: one is metamorphosed sandstone and shale, the other is limestone—about 80% of the ore now worked comes from the latter. Thus the ore in the three principal centres Tangdan, Loshüe, and Tasui is in limestone, but it differs in its mode of occurrence. That in Tangdan is an irregular stockwork with occasional concretionary masses of barite. The original chalcopyrite is often altered into carbonate and the richest ore rarely exceeds 15%. As it occurs in a concentrated area near the village, easy to work and to smelt, Tangdan produces more than 45% of the total amount of copper produced in Tungchwan. In Loshüe and Tasui, on the other hand, the chief minerals are erubescite and chalcocite, often extremely rich. They occur in irregular masses varying from 4 feet to a few inches in width. Quartz is often associated with the ore body, but the boundary between the country rock and the ore body is nowhere clear. They are probably substitution products. Stockwork similar to that in Tangdan occurs also, but much less worked than the high grade ore. The other two mining centres, namely Tiechang and Moulu, have their principal ore in the metamorphosed beds, mostly chalcopyrite with occasional mixture of silicates which make the ore more difficult to smelt. It consists of impregnations irregularly distributed in the rock—those in Tiechang are small and scattered, but in Moulu they are more concentrated and richer.

History

With full access to all the official and private records and archives I have compiled a sufficiently accurate history of the copper mines since the year 1697. It falls naturally into five periods and I will give a brief account of each separately.

1st Period (1697-1737). The whole territory of Tungchwanfu was under the complete rule of Lolo kings before the 14th century when it came under Chinese administration. The ancient feudal lords were, however, left to do much as they liked, so the subjection was rather nominal, and during the whole of the Ming Dynasty the Lolos gave Yunnan and Szechuan plenty of trouble by their frequent raids. With the establishment of Manchu rule in 1644 they were pacified and a few Chinese colonists began to find their way into that remote region. No doubt copper mining was first started some 30 years after by the miners from Hunan and Hupei. In 1697 the copper mine of Tangdan was mentioned for the first time in official records, and a tax collector was soon sent there. The miners were allowed to sell their copper provided they paid the 10% tax. This lasted till 1725. A year before that date the Lolo feudal lords in Tungchwan and Chaotung rebelled and their rule was consequently abolished and the whole prefecture came once for all under direct Chinese administration. Moreover, the prefecture which formed part of Szechwan before, was now separated and given to Yunnan. As Yunnan was a much poorer province than Szechuan, the officials began to look to the flourishing copper mines for revenue and in 1726 a partial monopoly was established. Money used to be advanced to the miners without interest, but in return they were required to sell all their copper to the Government at a fixed price of 5.4 taels per picul, a price that was little more than 50% of the market price at the time. This did not, however, do much harm to the miners because the miners were not compelled to borrow money and those who worked with their own capital could do what they liked with their copper. According to the records the copper bought at official price amounted to 9,000 piculs annually, about $\frac{1}{5}$ of the total production, and this was sold by the Yunnan Government to the neighbouring provinces at a big profit.

Second Period. (1738-1858).—Towards the year 1738 a great change took place. Copper was urgently required in Peking for coining the brass cash, and the little copper produced in Hupei, Shansi, and Chihli was utterly insufficient. Foreign copper (Japanese?) had to be imported, but as its price was 16 taels per picul, and that of Yunnan copper 11 taels, it was decided to stop the import and put aside one million taels to work the copper mines in Yunnan. In 1738 a complete monopoly was established and no one could work copper mines without getting capital from the State and he was bound to sell his copper to no one else but the State. The provincial officials were held responsible for sending to Peking annually 44,400 piculs of crude copper and since 1741 it was further increased to 63,314.4 piculs. If there was a surplus the Provincial authorities were allowed to sell it to the other provinces at a profit. No important change took place till 1858 when the Mohammedan rebellion broke out. During the whole period, the highest price paid to the miners was 7.452 taels per picul (1822-1858) and the lowest price was 5.08 (1738-1753). In both cases it was below the actual cost of mining and smelting for the miners had to pay a heavy tax of 14.2%, and yet from 1738-1858 the annual production never fell below 70,000 piculs and in 1773 and 1774 it was over 135,000 piculs! The apparent paradox is explained by the fact that, though the nominal price was very low, the actual amount obtained by miners was at least double, for the money was paid *in advance* and no miner ever paid back the full amount of copper due. The officials dared not press them for fear that the production might fall below the required figure (63,314.4 piculs) when they would be forced to buy copper out of their own pockets to make it up. So this kind of bad debt was patched up by manufacturing high administrative expenses and freight rates, so that the total cost per picul paid by the Peking Government was more than three times the nominal price allowed; for example, between 1754 and 1820 the average cost per picul delivered at Peking was 18 taels!



LIMESTONE SLOPE NEAR LOSHÜE COVERED WITH DEBRIS

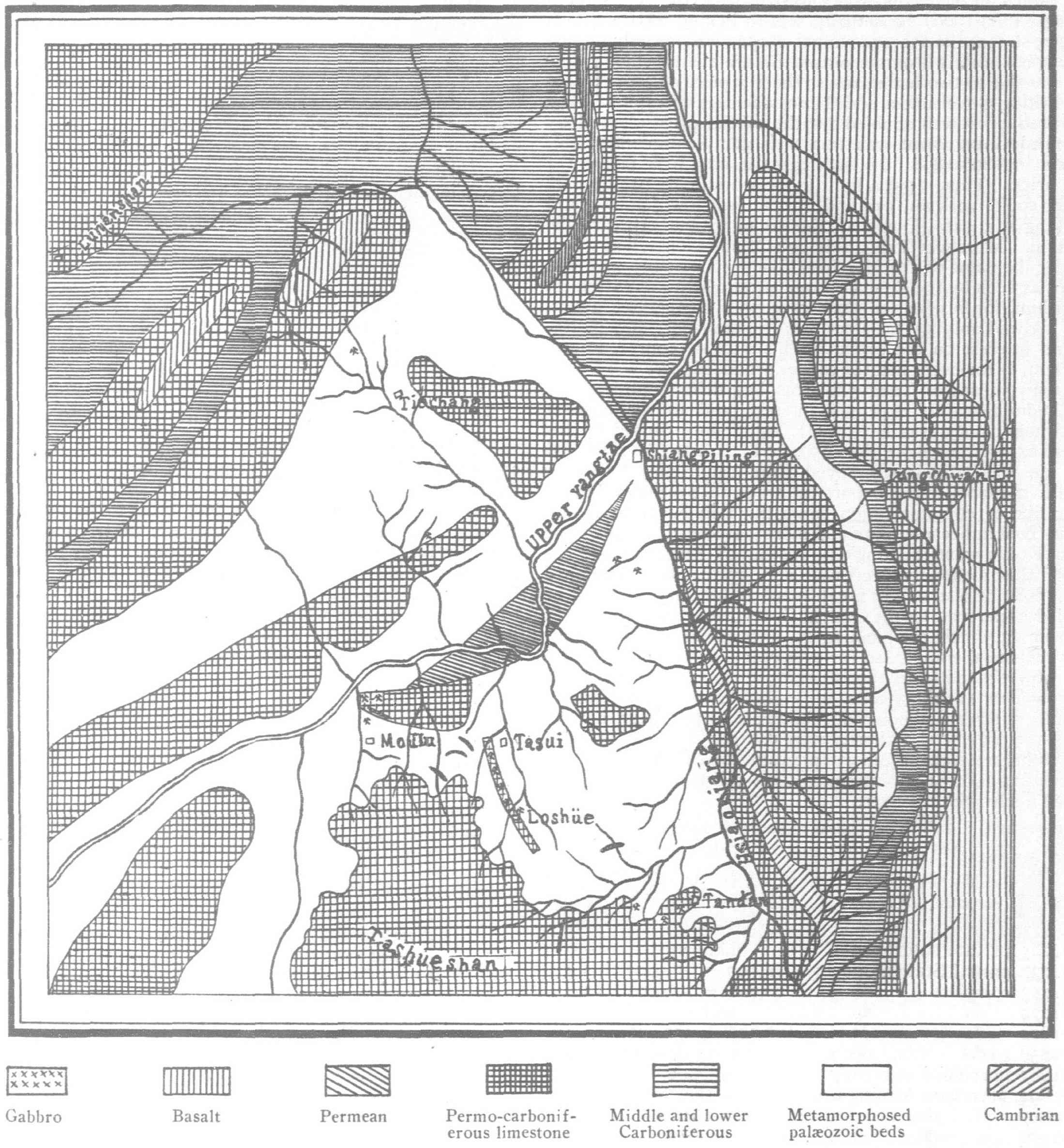
The second period, therefore, represented the most flourishing time for the copper mines and from 1738 to 1858 the total amount of copper produced in Tungchwan could not be less than 600,000 metric tons, a figure approximately equal to $\frac{2}{3}$ of the total production for the whole world in 1911.

Third Period (1874-1887).—In 1858 the Mohammedan rebellion put a stop to all mining activities in Yunnan. It is in fact the most important landmark in the mining history of that province, for with the single exception of the tin mines in Kokiu nowhere have the mines been able to recover completely though half a century has elapsed. From 1858 to 1874 not a single catty of copper was produced, but as order was gradually being restored, the provincial government began to look to Tungchwanfu for their old source of revenue. Utter lack of capital and the terrible effects of depopulation made improvement slow and difficult. Several efforts were made to attract private capital, but all were futile, and during these 13 years the total production for the whole province was 83,700 piculs, about 80% of which came from Tungchwan, thus its annual production was about 5,000 piculs—only 1/16th part of the former figure.

Fourth Period (1888-1911).—In 1887 Mr. Tang-chiung was appointed Commissioner of Mines to Yunnan. He was in many

SKETCH MAP OF THE TUNGCHWANFU COPPER MINES

SCALE 1 : 400,000



ways more advanced than his time. Before this appointment he had held high offices in Yunnan and knew the province well. He repeatedly pointed out the evils of State monopoly and thought that the only remedy was to create a private company which he immediately set himself to form under the name Merchant Mining Company in order to work the deposits by modern methods. For this purpose he engaged four or five Japanese engineers to take charge of the mining operations and ordered some boilers and furnaces with a view to modernise the smelting. He had a working capital of about 200,000 taels, mostly borrowed by himself from a rich Yunnanese banker. Unfortunately his Japanese experts appear to have been ill-qualified, for no surveying or development work was done, and spacious horizontal and inclined shafts were driven anywhere. More than a year passed away and more than 100,000 taels were spent without seeing any copper. The Commissioner became alarmed, but he was repeatedly assured that copper was forthcoming, so things continued for some time. The native miners, however, were impatient. They were at first awed by the presence of foreigners, supposed to be superior in knowledge—according to the story circulated even to-day, the Japanese boasted that with the telescope and compass they could see through the rocks and make sure the ore was there. As time went on, however, the shrewd miners became suspicious and to verify their suspicion, they buried a large mass of copper ore immediately below the opening of the shaft. Then the Japanese were asked to inspect the spot with their telescope and compass to see if any ore were there. One receiving a negative answer, shouts of laughter and contempt greeted the supposed experts, and the ore was dug up in their presence. This seemed to satisfy the Commissioner that the Japanese were imposters and they were dismissed accordingly, and during the following 19 years of his tenure he tried European methods no more.

From that time on he reverted to the old system entirely; thus money was advanced to the numerous small miners and they paid in return all their copper at a fixed price. In the 18 years following (1889-1906) he actually sent to Peking 180,000 piculs of copper, so that the average annual output was exactly 10,000 piculs, approximately $\frac{1}{8}$ of the output before the rebellion. His failure was due to two main causes; the low price of copper paid by the Peking Government and the insufficiency of capital. The cost of production was doubled but the official price allowed by the Central Government was 10.3 taels per picul in 1889-1890, 11.3 taels in 1896-1898. In both cases it was 40% below the market price. Thus it put a limit to the workability of the ore; no miner could work any ore under 10%, as below that he would be working at a loss. Obviously this could not but decrease the production. Moreover Tang, although Commissioner, was working under the name of the Merchant Mining Company and was regarded as such by the Central Government which was extremely hard on him, for besides the price of copper enumerated above, he was allowed only 5.7 taels per picul for transport, administration, and interest on the capital. This was, of course, utterly insufficient, so for every picul of copper produced there was a dead loss to the company or Tang who from bad debts contracted by miners, administrative expenses, interest paid to the bankers (from whom money was borrowed), and failure caused by his Japanese experts lost more than 650,000 taels between 1888 and 1898. He was temporarily saved from bankruptcy by being allowed to monopolise the export tin trade to Szechuan, but as the new line of communication down the Red River to Hongkong via Tonkin became more and more developed, most of the tin from Kokiu went to Hongkong instead of Szechuan and the profit of this monopoly decreased and by the date mentioned above (1898) he was still in great financial difficulty. At last he succeeded in persuading the Central Government to increase the price from 13.3 taels per picul to 20 taels out of which he only paid 14 taels to the miner, so for every picul of copper he had a profit of 6 taels and from 1899 to 1906 he paid off the remaining part of his debt (about 350,000 taels) and left his post in 1906 a freeman. After that the mining administration passed into the hands of the provincial authority who continued much the same system as before, but the official price increased from 14 to 17 taels per picul and the output from 10,000 to 13,000 piculs. This remained unchanged till 1911.

I give in the following table a summary of what has been said above with dates and figures in greater detail:—

YEAR.	METHOD OF ADMINISTRATION.		ANNUAL PRODUCTION. PICULS	OFFICIAL PRICE. TAELS
1697—1725	private enterprise		unknown	—
1726—1737	partial State monopoly		45,000 — 50,000	5.4
1738—1753	complete	do	80,000 — 100,000	5.8
1754—1772	do	do	100,000	5.5—7.0
1773—1822	do	do	100,000 — 130,000	6.4
1823—1858	do	do	80,000 — 100,000	7.45
1874—1887	provincial monopoly		5,000	10.3
1888—1892	Merchant Mining Co.		10,000	10.3
1893—1897	do		10,000	11.3
1898—1899	do		10,000	13.2
1900—1906	do		10,000	14.0
1907—1911	provincial authority		13,000	17.0

The Present State of Exploitation

After the revolution the Yunnan Government naturally took into its hands the same monopoly. As, however, no copper was now sent to Peking, it was sold to the merchants in Tungchwan who exported it to Szechuan. Soon it was found that the net profit was enormous, for the Government paid only 16 taels per picul to the miners for crude copper containing about 85% and after a simple refining at a small cost, the purer copper could be sold in Tungchwan at more than 30 taels. With economy of administration and a slight increase of production (about 14,000 piculs in 1912), they managed to reap a big profit. Encouraged by this success, they organized a company with a capital of 300,000 taels in order to develop the mines on a larger scale. Half of the capital was subscribed from private sources, and in March, 1913, the whole administration was handed over to the company which was entirely controlled by private shareholders. The result turned out quite different from what was expected by the Yunnan Government, for, finding that the existing system gave them great profit, the shareholders were unwilling to risk their money for any improvement, so more than two years passed away without anything whatever being done. It is for this reason that a new Commissioner was recently appointed to consider the whole matter, and the future of the mines at Tungchwan depends much on his decision.

The actual quantity of copper produced from April, 1913, to December of the same year was as follows:—

LOCALITY	AMOUNT IN PICULS
Tangdan	5,057.68
Loshüe	2,018.15
Tasui	1,074.00
Tiechang	763.58
Moulu	607.95
Other small mines	349.96
From old slags	230.67
Total	10,101.99 piculs

This is all crude copper containing from 65 to 90% of copper, that from Tiechang being the worst. On the average the percentage of copper is about 85%.

Before 1907 this crude product used to be sent direct to Peking. The unnecessary extra expense of transport was thus considerable. In 1908, at the suggestion of the Tientsin mint, several refining furnaces were erected in Tungchwan. Space forbids me describing the process of refining or the metallurgy of the native miners which had already been partially described by Rocher, Duclos, and Leclère.

The quality of the refined copper is shown by the following analysis:—

	Cu	Fe	Impurities
1	98.24	1.58	0.18
2	98.82	0.69	0.49
3	99.15	0.61	0.24
4 *	99.14		
5 *	99.17		
6 *	97.03		
7 *	95.00		

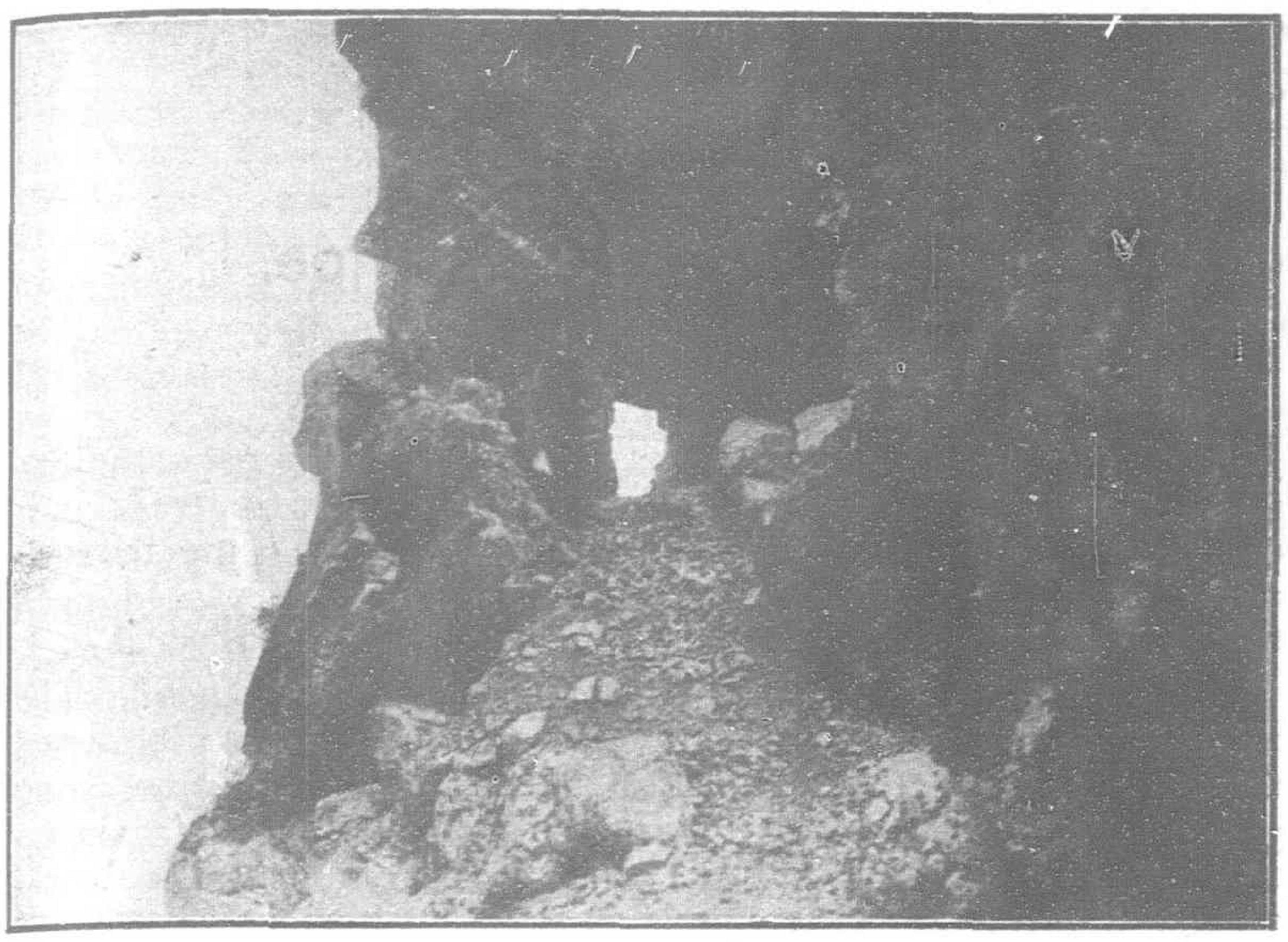
* Percentage of copper alone was determined.

The cost of production per picul in 1913 was as under:—

Price paid to miners	16.4	taels
Average transport to Tungchwan	0.8	,,
Cost of refining	1.4	,,
Loss of weight due to refining	1.64	,,
Administration	0.74	,,
Interest on shares	0.109	,,
Tax	0.85	,,
Total	21.939	,,

Proposed Administrative Reform

From what has been said above it is clear that apart from the natural drawbacks of the mining and metallurgical methods used, the stumbling block to any development is the character of the monopoly. Not only do the mines suffer from the evils inherent to any monopoly, but the worst is that this particular monopoly does not actually work the mines! A small sum is advanced to the miner and he is compelled to give in his copper at a low price. The evil is two fold: first, the profit of the miner is so small that there is no inducement to work. He works because he can find nothing else to do to gain a living. Secondly, the low price imposed puts a limit to the workability of the ore, for at present the poorest ore workable is 8%, which is ridiculously high when one remembers that the Mansfeld copper slates contain only 3%. As long as this state of things exists no increase of production can be hoped for. The Government must either work the mines or leave the miners to work them. Perhaps it is best to do both as the area is far too big for a single organisation to manage if anything like modern



A HORIZONTAL TUNNEL CUT THROUGH LIMESTONE, NEAR MOULU

working is intended, and many of the deposits are too poor and too scattered. It is hoped that the new Commissioner will see his way to bring about a healthy change.

Practicability of Introducing Modern Methods

The question rises, however, that if the Government or a capitalised company is going to work the mines, will it pay to do it on a modern scale? This depends chiefly on the character and quantity of the deposit, the means of communication, the proximity of good coking coal, and the cost of motive power. Let us consider them separately.

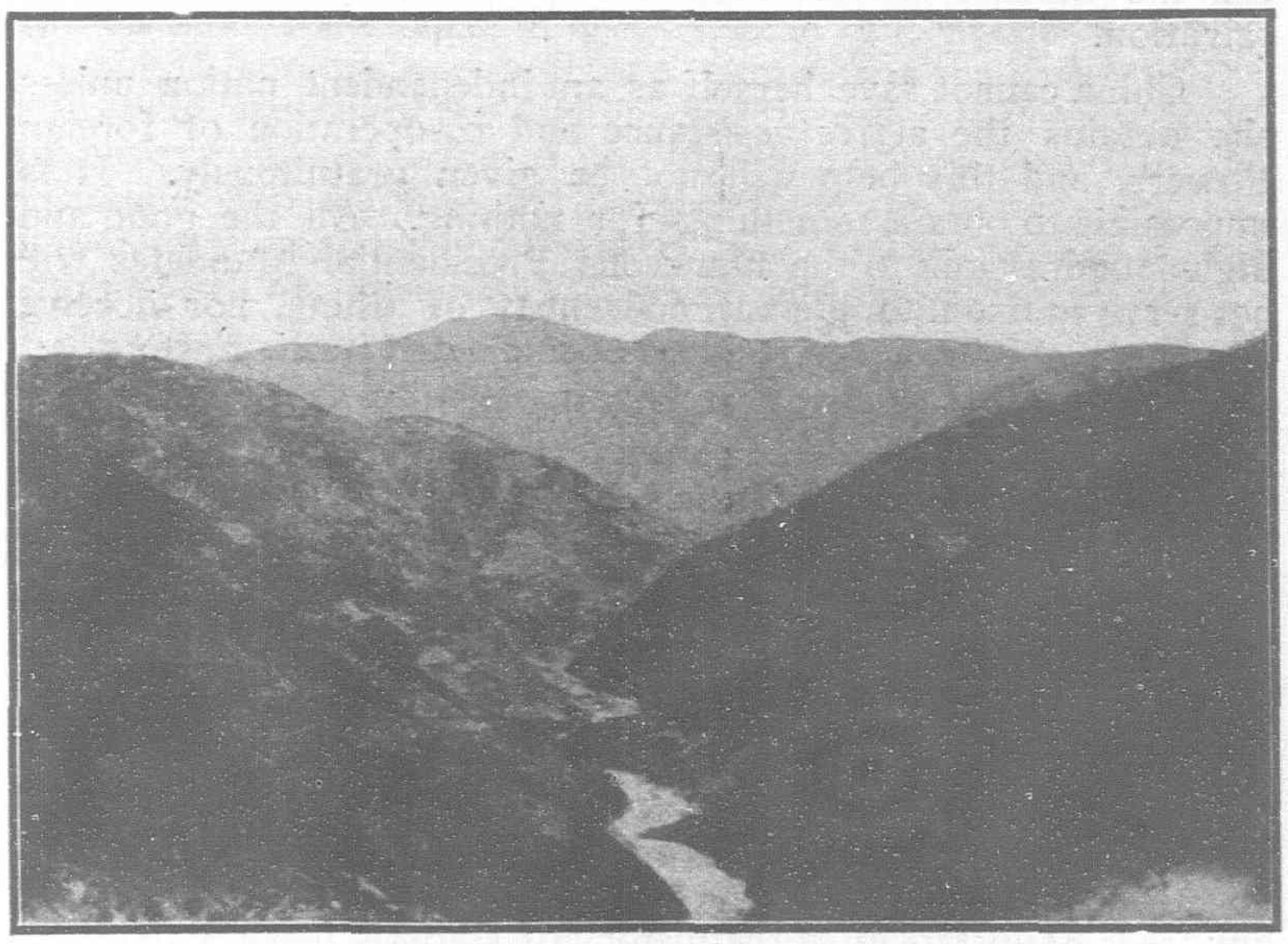
I have already indicated the character of the deposit so it remains to consider its quantity. The few days that I was able to spend there were, of course, utterly insufficient to enable me to form a scientific opinion. All that I can say is that I was favourably impressed, for in the several shafts I descended I found an extremely rich ore body measuring more than 25 feet in width though its shape was irregular. This was in limestone which formed a continuous band from Tasui to Loshüe for a distance of 6-7 kilometres in length. Almost along the whole length of it are scattered numerous small shafts which prove the existence of the ore. Again the limestone near Tangdan containing the stockwork forms also an East-West belt not less than 2.5 kilometres in length, and is famous for its productiveness of a comparatively low grade ore. I think these two localities, at any rate, will prove eventually to be suitable for modern methods as they are also the nearest mines to Tungchwan. The mines in Moulu deserve also serious investigation as the copper occurs also in the metamorphosed sediments which are easier to mine, especially where the low position of the mines and the existence of a high waterhead may make hydraulic sluicing possible. No doubt in all the mines a good portion of the ore has been worked out, as can be seen from the statistical data given above. On the other hand the very productiveness in the past proves to some extent the value of the existing deposit, for mining by old fashioned methods is limited by two irresistible factors, namely the lack of ventilation and the trouble of ground water.

The means of communication, or rather the lack of it, is a serious hindrance, but considered more closely it is not as bad as it seems. The following table gives the distance of the principal centres from Tungchwanfu city:—

LOCALITY	DISTANCE IN LI
Tangdan	150
Loshüe	180
Tasui	190
Moulu	250
Tiechang	240

On the average the cost of transport of evey picul of copper is about 0.3 tael per 70 li making the cost of transport to Tungchwan about 0.8 tael per picul at the present relative amount of production. Tungchwan is about 1780 li from Chungking, but as the greater part of the way can be done by water, the cost of transport per picul from Tungchwan to Hankow is about 5 taels. The total cost from the mines to Hankow is therefore a little less than 6 taels per picul. This is, after all, not prohibitive if the low cost of production can be maintained. The Chungking route is the one actually followed by merchants. There exists a direct road from the mines to Yunnanfu, but the distance is over 400 li and the prohibitive railway freight, transit dues, double export and import duty make it more profitable to transport via Szechuan such copper as is destined for the home market. There is little hope of railway construction, as for the present at least it cannot be justified on economic grounds.

The lack of good coking coal near by will be the most serious question for consideration. The carboniferous coal which usually occurs below the Permo-carboniferous limestone is unfortunately of very bad quality and non-coking. The nearest coking coal, upper Permean in age, is found at Whanglishun, more than 300 li away, on the East bank of the Niulang-kiang. Good coke can be obtained in Tungchwan at $16 per metric ton, but to transport it further to the mines would increase its price enormously. I do not think it possible to get coking coal at the mines for less than $25 per ton. Obviously if we have to use coal for the power station, and the whole of the smelting process, the cost will certainly be prohibitive. Fortunately we can reduce the coal consumption to the minimum by some other means. The tributaries of the Yangtze and the Hsiao-kiang have cut very deep gorges in the district but the fall in every case is very steep—thus a sufficiently high waterhead is obtainable. Many of these have enough water all the year round. In one of them just North of Tangdan for example the amount of water flowing per second is about 60 cubic feet in September. With a fall of 1 in 30 and a waterhead of nearly 200 ft. the above amount of water would be enough to generate 200 horse power which is probably all that is required in the beginning. If this is chosen as the centre for smelting, 15 kilometres of air tramway and 7 or 8 kilometres of light rail will connect all the important mines in Tangdan and Loshüe to the works. Again, as charcoal is much cheaper than coal (10 taels per ton), it will be found advisable to adopt the Japanese Mabuki type of furnace in which charcoal is used instead of coal, and the roasting can be done by Chinese methods, so that coking coal is indispensable only for the blast furnace.



A TRIBUTARY OF THE UPPER YANGTZE, NEAR TIECHANG
(TAKEN FROM A CONSIDERABLE HEIGHT ABOVE THE RIVER)

The task before the new Commissioner is therefore hopeful, but by no means easy. Scientific investigations must be carried on at the same time as administrative reform, and he has to fight against the vested interests of the monopoly, the conservative habits of the miners and the interference of the provincial authorities. But he may at least count upon the support and advice of the Mining Department, and wisdom and energy will gain for him the everlasting gratitude of the Tungchwan miners as well as proper official recognition.

THE WRITING ON THE WALL

The Effect of China's Foreign Policy upon her National Existence.

[BY SANS GANTS.]

How can China be saved? This is the question asked daily by Chinese and foreigners alike. In many cases the interest shown by foreigners in the work of saving China eclipses that of many Chinese. The notorious Twenty-One Demands made by Japan upon China in January of this year acted as a general alarm among the world Powers, sounding a signal to all who had interests to protect in China to be on the alert. The Powers affected by these demands were those possessing large financial and commercial stakes here, and it was the business men abroad who caused the respective governments to awaken to the realisation of what was happening in the Far East.

It seems a sordid thing that commercial reasons alone should prompt the world Powers to an interest in China, but it is true, and that truth should control the foreign policy of the country. When the Peking Government realises that little sympathy for China is forthcoming from any nation that is not based upon the opportunity afforded by China for commerce, then, and only then, can the Chinese Government take proper steps for their own salvation.

China cannot save herself as an independent nation unless she obtains the active assistance and co-operation of foreign Powers, and this help will not be given gratuitously. It is impossible to obtain something for nothing. All the good and high-sounding talk in the numerous Presidential Mandates will not serve to maintain the national entity of China, nor deceive any longer the foreigner resident or interested in the East.

For the next twenty-five years the attitude of China towards the Powers will be the determining factor as to the existence of an independent China. The world has waited most patiently for China to formulate and put into force a well defined and approved foreign policy. At the time of the Sino-Japanese War there were many who felt that it would make China realise her true position, but needless to say there were none of China's well-wishers who were not intensely disappointed. Then came the Boxer Troubles, the Russo-Japanese War, the Twenty-One Demands, and now the interference of Japan with the internal administration of China; all are tests of what China can and will do. If it were necessary it would be a simple matter to cite hundreds of instances in the history of China's foreign relations that could also be taken into account as tests of China's ability or inability to save herself. Dating from the Treaty of Nerchinsk, being the first foreign treaty signed by China, and which for the first time evolved the law of exterritoriality, there have been instance after instance of China ramming her head against the stone wall of foreign determination to develop China if she were unwilling to do the work of her own volition. With the more recent events during the lifetime of the majority of us we have sufficient test of China's wisdom or unwisdom in the conduct of her foreign relations.

In the Sino-Japanese War, the Russo-Japanese War, the Boxer Troubles and the Twenty-One Demands we find that the sentence of death was passed upon the national independence of China, and in each instance it was commuted by the world Powers with the hope that China would, by being accorded another chance, appreciate her mistakes and awaken to a realisation that she must devise a foreign policy that would assure her of her national entity. The world has been extremely patient with this great nation, and the exasperating indifference of China has begun to make the Powers weary of rendering her further assistance. While in each great crisis the world has come to the rescue of China merely in the name of trade, yet China has had the opportunity presented on each occasion of doing the one thing and the only thing that will save her—ensuring the adoption of an enlightened foreign policy. The day may come when the Powers will be forced to the conclusion that a China ruled by Japan, or a dismembered China, will present the opportunities that are desired—the opportunities of equal rights in trade in a country that is open to all. When the Powers do come to such a definite conclusion the sentence of death will be passed upon China's national independence that will be forever irrevocable.

Can China save herself without foreign assistance? The answer is a simple and emphatic No! The world has progressed too far in advance of China to allow of sufficient time being given for the development that is necessary for China to make up the lost time and rank with the other great nations. The world will not wait for China to struggle on alone. China, however, must develop and this development cannot be undertaken without the direct and interested assistance of foreigners.

In rendering such assistance the Powers will demand one thing in exchange for the help given, and that will be the opening of China to trade. A price must be paid for the independence of China, and that price is equal trade opportunities to all nations. When this price is paid the influx of foreign brains and capital to be expended in the building up of a commercially and financially strong China will be the result. If China continues to refuse to pay the price she will be confiscated by the world Powers and sold to the highest bidder. She will be sold as a whole or in part—the decision to rest with the Powers who are physically the strongest.

The present monarchical movement is in a sense another test of China's ability to appreciate her position among the world Powers. It is obvious that a mere change in the form of government will not be the salvation of the country. To many this is the final test that the world will allow in behalf of China's competence. It is a simple matter for China to pay the price that has been asked for her salvation—equal opportunity to all in a free and open country. For it China can purchase national independence and prosperity, and it is high time that the Government at Peking should realise this.

The world will not wait for China to build up her productive centres, for there is, from all indications, nothing that tends to make one believe that there is any intention on the part of China to develop her resources of her own accord. The world has come to believe that each delay given to China merely means an indefinite postponement of the great work of development. The foreign nations have determined that China shall be developed, and in those centres that are believed to be productive, and where the foreigner finds it an easy matter to produce and market, he will, if force is necessary, use force to gain the opportunity that should have been his to carry on legitimate trade, and when he has gained this opportunity by the force of arms he will go one step further and annex the territory to facilitate his business. The reason for annexation is that he will, under his own flag, receive protection that is not guaranteed under the rule of the Chinese.

The case of Manchuria is clear to all. Here is one of the richest and most productive centres that has fallen to the people of any nation. At one time America, Great Britain, Russia and Japan fought for equal trade opportunities, which were denied to one and all alike. Every move was blocked by the Government. Russia and Japan by force of arms took the matter into their own hands, and with the recent Twenty-One Demands we see Manchuria passing from under the jurisdiction of China to Japan. China cannot give equal opportunities to all now. It is too late. The policy of China in regard to the disposition of any and all questions affecting Manchuria is now dictated by Tokio. If the check-mating and blocking policy of China towards the foreign nations had not been as it was there would now have been a rich and prospering Manchuria under Chinese rule.

Oftentimes we hear from Chinese that the United States should not have allowed Japan to take control of Manchuria, but should have helped China to keep this territory. In other words there are those who foolishly believe that the United States was going to lose millions in money and thousands in men to keep Japan from taking a territory in which the Americans had to fight for everything they got under Chinese rule. Had the territory been opened to foreign trade and residence, there would then have been such great commercial and industrial interests of the various powers in Manchuria that Japan would not have dared attempt to predominate. As long as the Chinese Government persists in this policy of blocking legitimate foreign trade and residence so long will foreign nations feel indisposed to fight for China.

In Shantung and Fukien provinces China has the same problem as Manchuria confronting her, and if we are not greatly mistaken the same policy used by the Government in Manchuria will bring similar results in these two Provinces. There is such a thing as postponing a matter until it is too late. This was done in Manchuria. When the Twenty-One Demands were presented Peking would have been more than glad to have had such heavy foreign interests in Manchuria that the action of Japan would have been impossible. But such interests are impossible unless equal trade opportunities are given to foreign nations. As stated above the time may come when the sentence of death will be passed upon the independence of China, and then it will be too late for China to have anything to say as to the disposition of any part of her territory.

Throughout the anti-Japanese campaign it seemed clear that this country was under the impression that the world Powers would not allow Japan to take China. This is an idea that is doing more harm than anything else to China. It is possible that with a greater Japan greater opportunities for trade will be given than now exist in Japan. It may be that Japan will come to realise that it is to her interests to make the position of the alien resident upon her soil more comfortable. Restrictions that are now placed upon foreign residence and trade in the Island Empire may to a large extent be removed and a freer scope be given to the foreign merchant. There is to-day a growing feeling among many of the leading Japanese that their treatment of the foreigner is altogether too strict to receive approval, and with the development of her resources now vouchsafed to her in the great territory of Manchuria it may be that her position will be so changed that it will be an easy matter to give encouragement to foreigners and their capital.

At any rate there is one thing that the foreigner and the Japanese both have in Japan, and that is protection of their interests. Life and property are protected. While the judiciary in Japan is still to many of us a crude thing yet there is constant progress. New conditions imposed by foreign intercourse are making the Japanese daily realise that certain shortcomings will have to be rectified. There is a constant search in Japan after that which will assure Japan not only her independence but an opportunity to stand well in the world, or to say the least to have the respect of nations. While Japan has been criticised most severely by the Powers for the manner in which she has treated China, yet, when Manchuria is developed, and there are scenes of prosperity and progress on all sides in that vast territory, the world will forget her unsavoury work just as it has forgotten the most detestable manner in which the independence of Korea was wrung from the Koreans.

One good deed hides a multitude of sins, and Japan knows this well. She seizes the opportunity of gaining new territories by underhanded means, and at once sets to work to develop the territory so secured. It is surprising to see the way in which the Japanese have developed both Korea and Manchuria. The foreigner who travels through these countries never fails to remark upon the excellent manner in which things have been done. It is what is done that counts and not what is said.

China has in her foreign policy talked herself to death. She has time and again stated to the Powers that this or that would be done, and nothing has been done. Many has been the time that she has promised to reform her judiciary, or at least create one, but so far no progress has been made. Even the enlightened Liang Chi-Chiao upon being made Minister of Justice did nothing more than to bring back into existence corporal punishment. China has pledged over and over again to reform her taxes and place them upon a uniform and workable basis, but nothing has been done. The most recent instance in tax "reform" was made by the hands of the present Minister of Finance when he levied a tax upon goods carried on the Tientsin-Pukow Railway that amounted to more than the cost of transportation, thereby driving the merchants to use the Tsinanfu-Tsingtau line, now under the control of the Japanese.

In other words the time has come when China must act and stop talking. The present movement for the restoration of monarchical rule is calculated by many to mean that China will now try to do something, but the persistent policy that China has used of trying to deceive foreign nations is not the foreign policy that will in any wise tend to build up China.

The foreign policy in the past has been used to block, checkmate, and deceive the nations. When any one foreign nation failed to be blocked, checkmated or deceived then the one remaining policy employed was to whine like a whipped child. This whining policy is now beginning to tire the world. When the Twenty-One Demands were presented China at once started whining. She wanted the world to sympathise with a big lazy child that was being beaten over the head with a stick by a child much smaller yet far more active and alert. The world had no sympathy with China when intervention was given at this crisis, but it did not want Japan to do all the beating alone. If China is going to be done away with as a nation it is the desire of the Powers to wait until the war is over in order that they might all have a chance. But if the big lazy China would in the meantime stop whining and do something the world would be as well satisfied though on the other hand a whipping such as was administered by Japan would be the policy that all would use.

Blocking, checkmating, deceiving, whining, should all be discarded. They are useless. It is impossible to continue this policy any longer, and China should once and for all make up her mind that she is going to *do* something. All that the Powers want is trade on a basis of equal opportunity; and they intend to have what they want. No foreign policy but an open door policy will save China from the hands of foreign nations. This open door policy must come into effect at once, and on the day that it is announced it will be found that only one nation in the world will be disgruntled, and that nation will be China's neighbor—Japan.

Foreign trade is so interminably mixed up with China's trade development that it is wise for China to determine upon a commercial and industrial policy that will not only prevent foreign control of China, but will accept the assistance of foreign enterprise on behalf of the nation. As has been stated above the future of China is dependent upon the manner in which China conducts her foreign relations, and since the various Powers want only trade then the matter of trade is the one important consideration on the part of China. A policy can be developed that will save China a great deal of the difficulty that she now experiences. In taking up this question of a commercial and industrial policy we will use the present Ministry of Agriculture and Commerce as an example of what can be done to create such a policy.

The Chinese Government has never given sufficient attention to its own internal state of affairs. Up to date all work carried on in an enlightened manner in regard to the thorough investigation of commercial and industrial possibilities has been done by the foreigner, and little or nothing has ever been done by the Chinese. In nearly every branch of commerce and industry the various nations have had their Commercial Attaches studying the condition of trade development, and these officials have been ably assisted by their fellow nationals in business and official life scattered throughout China. In looking over the work already done we see that the face only has been touched, and whatever knowledge has been collected has been used in the interests of the foreign trader.

It is necessary, therefore, that the Government set to work immediately and systematically to study China's own commercial problems. Up to date everything attempted by the Chinese has been done in a most slipshod manner, and for that reason nothing has been accomplished worthy of note.

The Chinese Government has now devolving upon itself the duty of assisting the merchants and the people to understand modern business organisation. It is the duty of the Government, too, to solve the problems of the merchants for them as much as possible. The Chinese have to learn thoroughness in their methods. It is only in that way that any proposal of value will be carried through.

The Government should annually expend some ten millions of dollars, at least, in the employment of competent foreigners and Chinese really to undertake the work of investigating into China's commercial and industrial possibilities. The result would be worth far more to them in the work of building up a stable Government than the same amount expended upon the army or navy. It must be kept in mind that the general complaint is that China is fast coming under foreign control. If that is so it is merely because the Chinese have not and will not undertake the work of studying their own country in such a way that the people will be able to derive sufficient encouragement and knowledge to handle their own commerce and industry. The nation should at once look into this matter of working out its own problems. The commerce and industry of China can never advance under Chinese control until the Chinese understand the meaning of organisation.

Once the Chinese study and understand what they have in their own land they will have to organise, to develop and control it. At present the Chinese have no real knowledge of what they possess. The average foreigner coming to China to invest capital is compelled to formulate and advance a commercial or industrial proposition to the Chinese, for as a rule they do not know the possibilities that exist for such a proposition. It invariably follows that the foreigner undertakes the development of any accepted scheme simply because there are no Chinese trained to handle it.

Foreign control of Chinese commerce and industry will increase daily until the time arrives when the Chinese learn to appreciate their own opportunities and take advantage of them. The foreigner intends to come into China for trade, and the Chinese will have to accept him. The only manner, therefore, in which the Government can avoid control is by a very efficient study of commercial and industrial opportunities, and by training men to undertake to exploit them.

The Ministry of Commerce should have, at as early a date as possible, sufficient sums of money put at its disposal really to undertake the work of studying the many and varied opportunities. Organisation and its methods will have to be understood and put into practice in Peking before Peking can tell the people what to do. The present organisation of the various Ministries is not such as would warrant the confidence of any business man. Useless men and more than useless offices will have to be done away with before Peking can persuade the Chinese people that the Government knows what it is talking about. The Government will have to put into practice what it teaches before any one will follow. There is not a man on the street but who knows that the Boards of Peking are made up of men who to all intents and purposes possess no special ability for the offices they hold.

The Government is continually complaining of the foreigner taking advantage of China. This is an incorrect interpretation to place upon foreign activity. What the Chinese must realise is that the foreigner is merely taking advantage of the opportunities that the Chinese throw away, or are trying to keep any one from developing. As stated above this cannot continue, for the foreigner will always control if the Chinese continue to sleep upon the job. The fault is with the Chinese and not with the foreigner.

It has been pointed out before that the Chinese cannot hope to develop their country alone, but there is a certainty that they can develop it without losing their sovereignty if they will only seek the aid of the European or American in studying the commercial and industrial problems of China in a modern way. The duty of the Government is clear as regards the business man. The practical characteristics of the Chinese business man to date have made him wary of the good intentions of the central authorities, and this feeling will only be overcome by an actual accomplishment of the many things the Government advocates. Actions speak louder than words, and the poor Chinese have had no end of words, kind and otherwise, from their high authorities, but rarely have they had that sympathy, support, and protection from the Government that is so necessary in the proper building up of business.

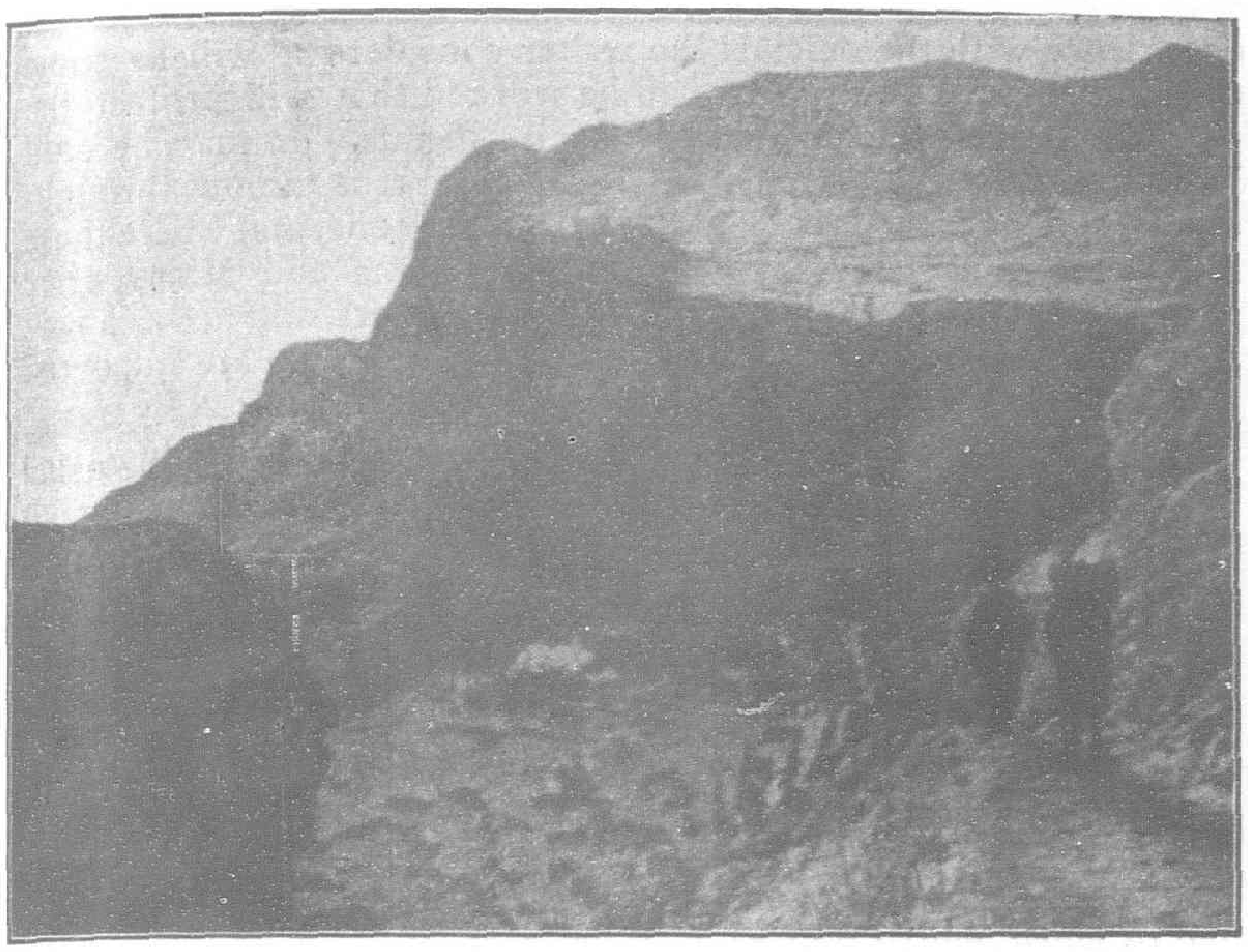
The Government's present persistent policy of *talking* and not *acting* is simply driving the Chinese people to the foreigner for aid. The Chinese with money is afraid to invest in a purely Chinese organisation, for he is doubtful as to what the Government will do to him when he begins to benefit from a profitable concern. It may be that a tax will be added that will kill the concern, and lose to him his invested capital. It may be that the Government, seeing the business a paying one, will give one or two high officials a monopoly. The monopoly controlled by nothing but greed will swallow up the small concern. In other words the Government is responsible for the fact that there are something like eighty millions of taels of Chinese money belonging to Chinese lying idle in the banks of the various treaty ports, and also for the fact that the Chinese yearly invest millions of money in concerns owned and controlled by foreigners.

The policy of the Government to date has been one of inviting the foreigner to take control of trade and territory. It has been the Government that has been driving the people to take refuge under foreign flags. It is the Government alone that can change all of this, and it should be done immediately. No more Mandates need be issued in regard to the development of home industry beyond those concerning the appointment of competent men to office.

The foreign relations of China are based upon trade, and trade development in China by Chinese is the only solution to the increasingly vexatious problem of how to handle the foreigner. The foreigner will profit far more than he does now when the Chinese take care of their own trade. As it is, comparatively but a few foreign merchants trade here, though as soon as China has reached the point where she is affording her own people the necessary encouragement by example and by the enforcement of protecting laws, then and only then will the foreigner enjoy the privilege of remunerative business on a large scale.

The army can police China, but not in a hundred years under present conditions can it be of sufficient strength to defend China against a foreign enemy. The little talk already circulating in Peking with regard to the Model Army has evoked quite a good deal of criticism from the Japanese Press. The Japanese do not intend to let China build up an army of any force, and this idea may as well be understood. It is for China to build a a model army of sufficient size to take care of her own country internally. Two hundred thousand men well trained could do this. The money now expended upon the upkeep of four to six hundred thousand soldiers could be easily turned to more practical purposes. When China begins to organise her own trade the world will then begin to appreciate the gift of a free market unhampered by overtaxation and official checkmating. The world will then help China to preserve her national independence, but otherwise there need be no hope for assistance upon any other terms than the complete control of China by foreigners.

In technical training, business management, and financial system the Chinese will have to seek the aid of foreign teachers. The foreigner is essential to further development of a free and independent China. The Government can solve the many complex and menacing problems now confronting the Waichiaopu, Tsaitsungpu and Chiaotungpu by undertaking the development of her commerce and industry.



MOUNTAIN PASS IN YUNNAN

MAIN STREET OF TALIFU, YUNNAN

THE MINERAL AREA OF WESTERN CHINA

[BY ARTHUR J. MOORE-BENNET]

At a time when the new mineral code of China which allows of foreign participation in mining is being brought into force, some analysis of the main western mineral field may not be out of place, and whilst the following notes on the native workings and deposits are not intended as a scientific treatise, they may be of interest to those who are interested in the better development of China's greatest potential wealth.

The area examined between 1906 and 1913 comprised that lying between the 22nd and 29th parallels of north latitude and the 97th and 106th meridians of east longitude. That China contains practically every mineral necessary for a great country's economic development is generally known, but the reason why she has to import a large percentage of her coinage, as well as industrial metals, whilst her own deposits are practically untouched is not so generally known.

The chief causes of this condition lay in (1) the ownership of land and mining rights, (2) ignorance of the natives in mining and smelting, (3) lack of transportation and roads, (4) the corruption of the petty local officials, the "squeeze" system, and mal-administration generally. In the area under review, 90 per cent of the people are members of various tribes that inhabit this borderland of the Mongol and the Aryan races and the remainder are Chinese who, sent across as officials, have intermarried with the tribes and own more than 75 per cent of the land they administered.

Owing to the mountainous nature of the country, difficulty of transport, poor roads, and the fact that a very small fraction of the people own the rice and cereal producing land, great power is wielded by the landlords, who as a rule besides owning the land, own most of the mule and pony caravans necessary to bring food in and take metal and merchandise out of the hinterland to the railways and ports.

The landowners, besides holding the land, claim possession of all the mineral found in their holdings, and although in some instances they pay a licence yearly to the provincial government, to work their claims, in every other respect they rule the country independently of any one except their own neighbours.

The workers in the mines are usually tribesmen, who own little if any rice or food producing land, so that to keep life within them they must either work at whatever task the landlord gives them, and at whatever rate of pay he thinks fit, or starve.

As a rule (with the single exception of Kochiu) the workers are in debt to the landlords from their birth to their death, and to all intents and purposes are slaves with no spirit of emulation to do more than was done by their forefathers and with no stake in the working to urge them on.

The native's idea of "mining" is to find an outcrop of any mineral and follow the load or seam down at whatever angle the dip may be until he strikes water, when working is abandoned, and a fresh outcrop sought, where the process is repeated. Hence the area is full of abandoned workings, twisting their serpentine way into the hills, only to stop on the first inrush of water that cannot be handled by the little hand buckets of the children, who as they have to crawl on hands and knees for perhaps fifty yards, down a hole usually less than 4 feet square that turns at right angles and doubles back on itself, can cope with but little. As even on the summits of hills ten and twelve thousand feet high springs are met with frequently, it will be understood that the amount of work done for the metal won is enormous, and also that the real deposits are seldom if ever reached. No pump can deal with water under these conditions, and until the people can be educated into the rudiments of mining as we understand it, little can be done to improve conditions.

Another reason why the area cannot be developed is the lack of roads. Little of this part of the world is flat, probably not 5 per cent, the remainder being crisscrossed with ranges running in all directions, shutting off valleys from any but the most distressing forms of communication, rendering prices of food stuffs absurdly cheap in the valleys and equally high in the mountain tracts. In many parts of Yunnan and western Szechwan twenty miles constitutes a hard day's march of from ten to fifteen hours, and in the rainy season ten miles will frequently take the skin off every mule' sback in a caravan. On the main road from Tengyueh to Talifu the road crossing the Mekong-Salween dividing range drops more than 3,000 feet vertically in less than a mile horizontally, and in the north and northwest of the province passes more than 16,000 feet above sea level are by no means uncommon.

The Yunnan idea of road construction is to set every sharp pointed or smoothly polished cobble stone that can be found into cement to make a track about seven feet wide, which is carried as straight as possible to its destination regardless of what the nature of the country may be, so that frequently in a distance of one mile the undulations traversed will amount to 8 or 9 hundred feet while with care the road could have been carried on the level by following contours.

As no central road administration exists, no care is taken, and country people and farmers often use the road as a drainage canal where years of use has sunk it below the level of the fields, and every stray man or woman who requires a few stones for making a camp stove or repairing a wall invariably takes them out of the road.

Of late great efforts have been made by the different foreign engineers in the country to impress upon the government the use of tractor roads such as those that exist in Mayala, in California, in Australia and Burma, and certain offers were made to the government to employ criminals in making such roads instead of executing them. But so far nothing has been done. As such roads can be built and equipped by forced labour for less than $5,000 per mile, without the aid of expensive foreign engineers, it was thought that this might recommend itself to the country people, but apparently they prefer the ancient method.

Of the existing railways approaching or entering the area, the Yunnan-Tonking road, owing to the lightness of its bridges, the sharpness of its curves, and its general alignments, is debarred from ever acting as a mineral line, and owing to a large percentage of its length being built on sliding shales and disintegrating rock hill-sides, it will be many years before it can hope to be open the whole year round, owing to slides, wash-outs, and floods staying traffic during the rainy season. In regard to the Lashio-Mandalay-Rangoon line, the steepness of its grades in the Mandalay-Mamyo section, where the line ascends the eastern wall of the Irrawaddi watershed in a five legged switchback with 4 per cent grades, necessitating double ended engines, and train weights not exceeding 100 tons, and the length of the haul to a seaport, will effectively exclude the line from ever acting as a heavy mineral road.

Of the projected railways, the French line from Yunnanfu via Chuchingfu to Lopingchow and from thence to Singyifu, Fengyi, Nanningfu and Yamchow, even if it is ever built, which is open to grave doubt, will be too long to act as a really efficient mineral line, and its meter gauge will debar it from being linked up with China's main systems, and from acting for heavy loads with cheap freights. The distance as the crow flies from Yunnanfu to Yamchow is about 430 miles and along the projected route it is over 780 miles.

The northern line from Yunnanfu to Suifu, owing to the fact that the Yangtze is not navigable at that point, and that the line will be exceedingly costly to build and work, cannot be looked to to solve the problem, and the only line that could really help would be one from the tin district of Mengtzu or Linanfu directly east to Wuchow, going as direct as the ground would permit, with grades of say 2 per cent. It is a distance as the crow flies of 496 miles, or on the easiest line that can be had, about 643 miles. Such a line properly worked on the most approved modern principles would halve the present cost of transportation in and out of the area, and would allow a continuous service being maintained at all seasons. Selected feeder lines of tractor roads at a small cost would complete a system that would effectively give the area free access to the sea at a cost which would allow the smallest miners to work profitably.

Lastly the pernicious squeeze system whereby every official makes all he can out of every one, where every petty Chou, and Ting and Hsien has its own likin station placed on the road in such a way that it is impossible to avoid going in one side of the station and out the other, where the rice and fuel going into a mineral area are taxed to the uttermost cash they will bear, and the minerals or metals coming out pay taxes in kind not only to the likin station but to the individual yamen runners who collect the tolls.

Provided China can eradicate the squeeze, can get some kind of road administration working, and will seriously educate her mining population in the most practical details of their craft, there is no reason why she should not export copper, silver and gold instead of importing them, but from seven years' intimate experience with the officials the writer considers it will be some centuries before any system can be worked that will protect the workers against the village and town officials. It may be said here that the mining population of the district is famous throughout Burma as a thrifty, clever, hardworking one, and where these men have equal chances, as they do in Burma and Malay, they turn out work equal to that of any white miners, and are as a rule more dependable than any of the other miners who are imported into these countries.

Wages generally throughout the district are cheap, the usual wage paid by Europeans for Chinese miners in Burma being 40 cents per day of 12 hours, while muckers get six dollars per month. Carpenters and mine timberers get 35 to 40 cents per day, but usually work on piece work. Carpenters, stone masons, timberers, and miners seldom if ever get six dollars per month when working in their own homes, and common labour usually less. In the salt workings north of Chuchingfu where some enquiries have been made into the cost of native labour it was found that coolies were paid at the rate of one picul of rice and 1,000 cash per month, and for this sum the coolie's whole family had to work, whilst miners, well drawers, and salt boilers seldom obtained more than their rice and 1,500 cash per month. In the copper mines in the Tali region, coolies and miners alike do not get more than 15 cents per day, and this region is a dear one on account of the limited rice area available. In Kochiu alone do miners demand and receive good pay, but this is also traceable to the high price of food stuffs and to the fact that the people from this corner of Yunnan are more excitable and hot tempered than the northern people.

Of all the minerals present, the most widely distributed is coal, closely followed by copper, silver lead (galena), iron, spelter (zinc), tin, antimony, bismuth, gold, mica, asbestos, orpiment, realgar, nickel, graphite, sulphur, petroleum, salt, alum, marble, limestones (lithographic), gypsum, clays (kaolin and pottery clays), corundum, platinum, and wulframite.

Coal

This mineral is found in the forms of lignite and bituminous nearly all over Yunnan, Szechwan, Kwangtung, and part of Kweichow, except in the S.E. corner of Yunnan, and in the eastern portion of Kweichow. It is worked and used as the chief fuel in Yunnanyi near Talifu, in Pingyhsien, Lopingchow, Yuehchow, Telepa and in all the country bordering between Kweichow and Yunnan, as well as at Makai, Sunglin, Sungshakwan (North of Chuchingfu), Yimen (north of Huilichow), Lichow (north of Ningyuanfu), at Silinghsien in Kwangsi, in the hills to the north and northwest of Poseh, at Napal and all over the northern part of this province. A better quality coal occurs at Takwang, at Shihping, and the surrounding country to Mengtzu, in the Tungchow prefecture and a still harder variety in the field that extends from Koupoutchouen on the Tonking railway 10 miles Northwest of Ilianghsien to Yardze-tarn near Shihtsunghsien.

At Koupoutchouen mining is carried on a fairly large scale, the output being carried on mules and coolies to the French Railroad 14 miles south of the mine where the railway takes about 6,000 tons per annum, and about 3,000 tons per annum is sold privately in Yunnanfu, distance by rail 55 kilometers. The average price paid at the railroad for this coal is $4.67 per ton, freight from the mines costing $3.25 per ton. The French railway authorities have tried to arrange on several occasions to build a cableway into the mines from the railway, but the suspicions of the country folk who fear the French political designs have prevented anything being done.

Coal from this mine also is taken down the railway to Pichichai, and there shipped in bags to Kochiu tin refinery on mules. At Shihshan or West Mountain, opposite the Yunnan lake, coal is also found and all down the valley of Yunnan lake coal outcrops are numerous. South as far as Sinsingchow and Siaohsien, outcrops can be located. At Yunlungchow, in western Yunnan, anthracite is found, but so far as is known is not worked to any extent, and hard coal is said to be present on the range that divides the Salween from the Mekong in Latitude 23 degrees to 25 degrees north.

The only portion of Yunnan in which coal is not found is the extreme Southeast corner. Elsewhere in Szechwan, Kweichow, and Yunnan it is impossible to travel 50 miles in any direction without finding either coal outcrops or workings, the bulk of this being bituminous, and lignite. At Sinsingchow, (lat. 24.20 N. long. 102.24 E.) there is a stretch of subterranean burning peat-beds that are very interesting, having been burning for over 26 years according to local authorities.

Coal is worked on the same principle as every other mineral. Outcrops, which are numerous on the hill sides, are worked down to water level and there abandoned. In the case of Koupoutchouen the coal occurring at some distance above water level, permits of rather deeper workings than are to be found elsewhere, but in every case where coal has been examined at lower depths than Chinese methods permit, the quality seems good and the calorific value much improved. The price varies from over a dollar and a quarter a ton down to as low as 60 cents per ton at the mine, and coke sells at $7.50 per ton at Iliang. It costs only $3.80 at Shihtsunghsien. Coal occurs, but is not worked, at many places in Kwangtung, especially near the West River delta within 100 miles of Canton City.

Copper

The copper deposits of Yunnan, have yielded in the past practically all the copper required for currency and other purposes in China and Burma, and up till the Mohammedan rebellion of 1870 the yearly yield is said to have been 100,000 piculs annually, the bulk of which has come from the Malipa and Tungchwang workings. The oldest known workings are those of Malipa, in the Shan State of H'swenli, of Taotsutsai to the North of the Sino-Burma frontier. The Tawnio and Taotsutsai workings as carried on to-day, consist of alluvial workings in the beds of the small creeks where native copper in thin laminae and filiform places are found, and (2), mining for malachite, and azurite, which are the only two ores smelted, the pyrites and sulphides, although more abundant, being discarded on account of their refractory qualities.

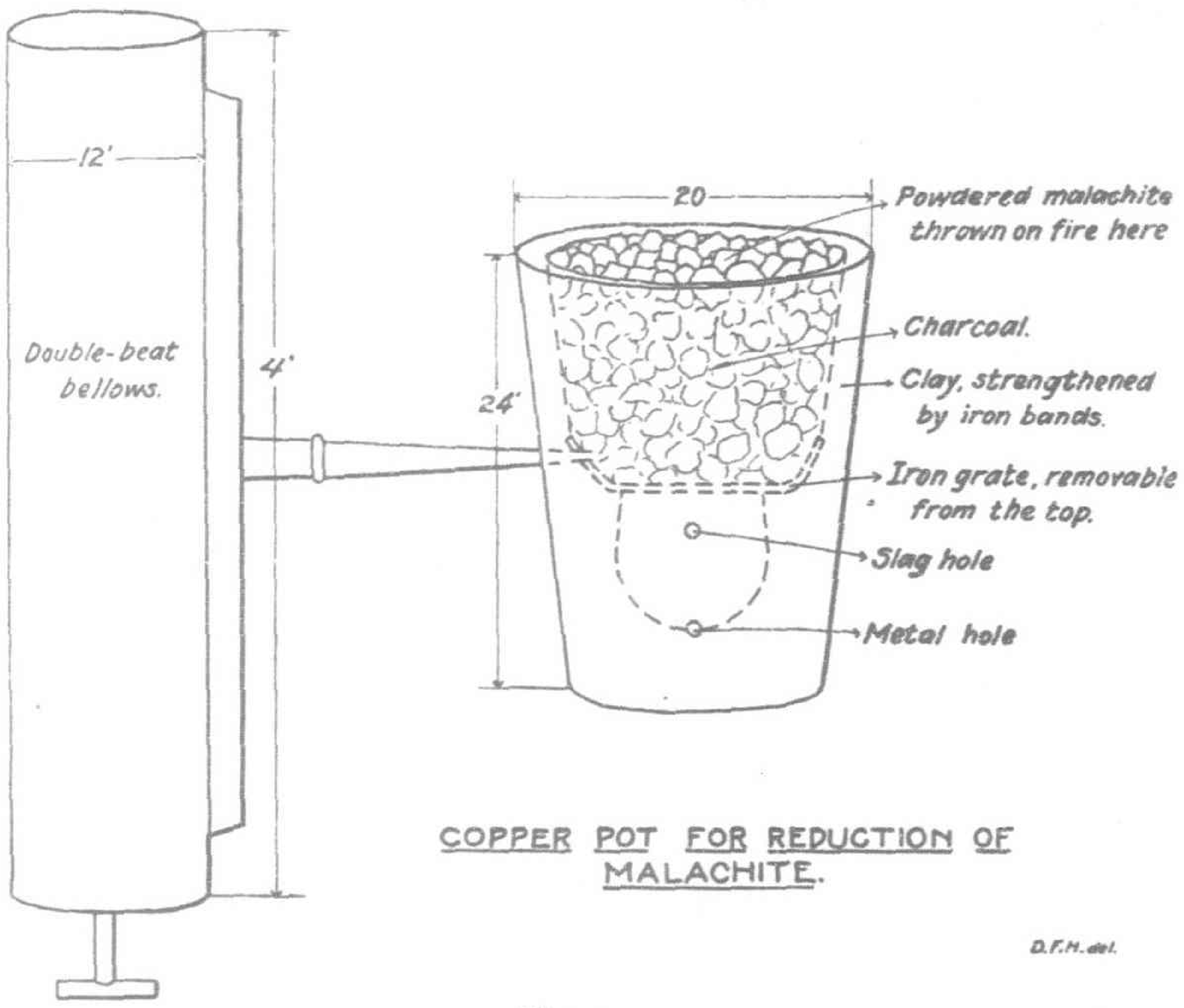

12'
Double-beat bellows.
4'
20
24'
Powdered malachite thrown on fire here
Charcoal.
Clay, strengthened by iron bands.
Iron grate, removable from the top.
Slag hole
Metal hole
COPPER POT FOR REDUCTION OF MALACHITE.
D.F.H. del.

Fig. 1

These mines are usually worked by a family, the father and elder male children being employed in winning the ore, the smaller children in laboriously carrying the spoil up the burrow, in small cloth baskets, the mother and elder female children in timbering the mine, and converting wood into charcoal, (coal not being used in these mines for smelting) and the old folks in crushing the ores, and in smelting.

Malachite not being found in massive formation, but as a thin laminae accompanying black ores, an enormous amount of spoil has to be mined to get a relatively small amount of malachite and azurite, and though pyrites have been found in veins nearly 2 feet thick, these strangely enough are not recognized by the miners as being an ore of copper.

The method of smelting is extremely primitive. It consists of grinding the malachite to powder in iron mortars, then gently heating the powder in an open fire, then cooling and washing the same, after which the powder is thrown a handful at a time on the surface of a charcoal fire, in an ordinary clay pot, (See Fig. I) divided in its height by a grate, fine enough to keep the charcoal from falling, and coarse enough to allow the molten metal to percolate into the lower receptacle. An ordinary Chinese box-bellows is connected by a clay tuyere to the fire, and after about fifty pounds of powdered ore has been thrown on the fire, a spigot closing the bottom receptacle beneath the fire is opened, and a small quantity of metal withdrawn and examined.

The workers judge by its appearance whether to continue the fire or to close down. If the latter, the fire and grate are withdrawn, the metal and slag stirred from the top with a piece of green willow (similar to the process known as "poling" in Europe,) and the slag poured off, the metal being allowed to cool in the bottom of the grate, after repeated skimmings. On analysis this metal has been found to contain as under:—

Copper	93.4 per cent.
Silver	26 oz. to the ton.
Gold	00.4532 oz. per ton.
Tin	00.134 per cent.
Iron	00.567 per cent.

The cost of producing a ton of the metal in the native manner has been found to be £57.14.3. and cartage on mules to the nearest railway (Lanhio) 135 miles to be £7.15.0. but by putting in a shaft, and side workings, using a locally made blast and calcining furnace, connected with a waterdriven fan, all of local manufacture, it was found possible to smelt the sulphides, and get a ton of finished metal for rather less than £35 plus the cost of the flux (lime) which had to be imported. At this stage however working was stopped by the Yunnan government.

Near the Burma boundary an old working exists where there is a dump of pyrites and sulphides containing many thousands of tons, and from the signs it would appear that malachite must have existed in masses here with native copper in similar formation. In many places in Yunnan carved masses of malachite exist as ornaments, all of which are said to come from the Malipa and Taotsutsai working.

The Tungchwan workings employ the same methods, except in one of the mines and smelters, where boilers were carried in from Yunnanfu at great cost of time and money, and a blower plant and small blast furnace erected. The ores mined and smelted here are malachite, azurite, red oxide (cuprite), black oxide (tenorite), copper glance (chalcocite), and pyrites (chalcopyrite), although native copper is found in masses similar in many respects to the Lake Michigan copper deposits.

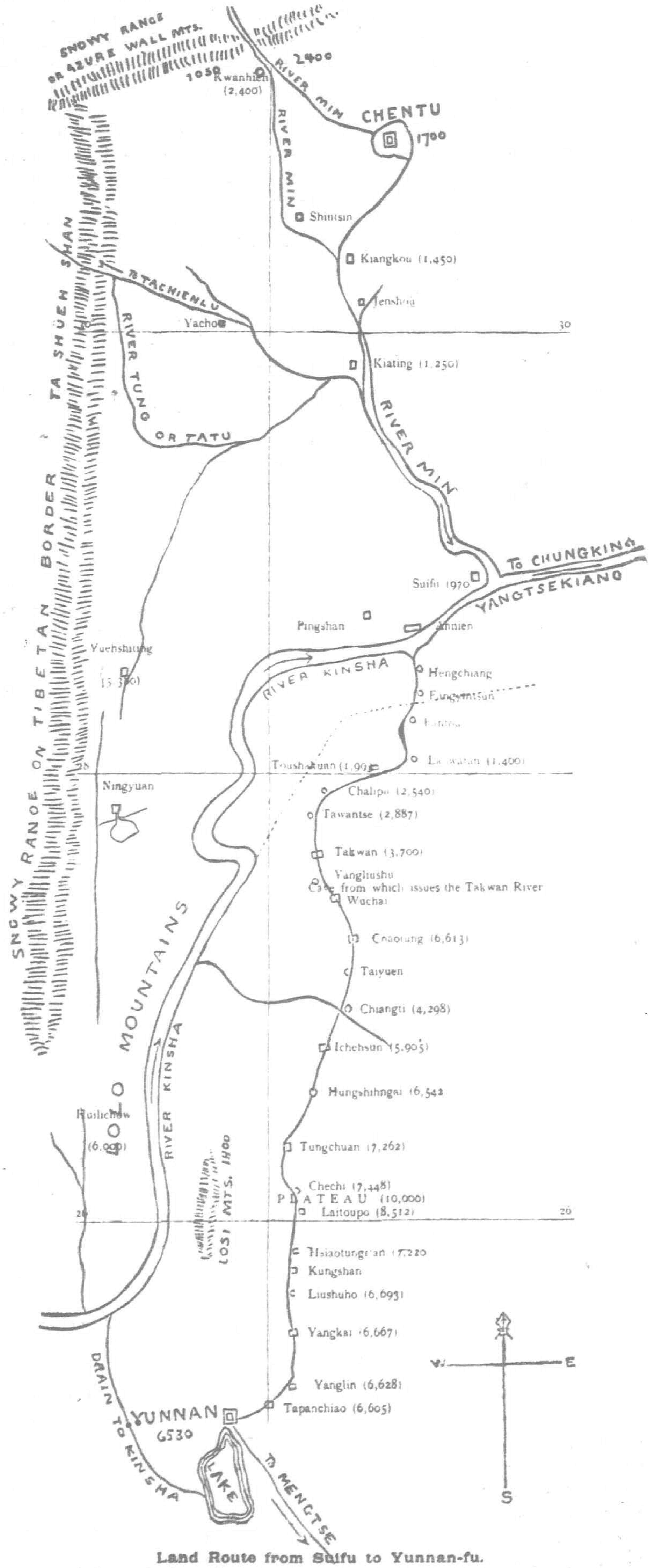
All the copper examined here seems to contain silver in varying quantity, some specimens going as high as 43.65 oz. per ton, though none examined had less than 7 oz. to the ton, and gold was found in 7 out of 9 specimens assayed.

A considerable quantity of grey copper (tetrahedrite) is mined, as its contents of zinc make it valuable for that metal alone, but although the chief ore found in this region seems to be black ore, this for some unknown reason is not used to any extent, except as a mixing agent with powdered oxides, in the ordinary small furnaces.

The output from Tungchwan in 1908 was over 15,000 piculs, all of which was used either by the provincial mint, or else sent to Peking for the Imperial mints. Since the revolution, however, the output has dropped, and last year fell as low as 7,000 piculs, but the output of zinc from the same region has with the advent of the railway to Yunnanfu risen from 231 piculs in 1909 to over 12,500 piculs last year. (1913)

As the provincial government requires more than the market price in London for the Tungchwan copper at the mines, it is impossible to make trial shipments, but on assay it would appear that the mines would be valuable if only for their silver content alone.

At the present time a condition almost approaching anarchy exists owing to the revolution having placed new mine directors not approved of by the local people at the head of affairs, and as



Land Route from Suifu to Yunnan-fu.

Suifu to Szechuan Border	4 stages	60 mi.
Szechuan Border to Laowatan	2 ,,	20 ,,
Laowat'an to Chaotung	6 ,,	132 ,,
Chaotung to Tungchuan	5 ,,	107 ,,
Tungchuan to Yunnan-seng	7 ,,	152 ,,
	24 stages	471 mi.

10 mi.

Tungchwan is 146 miles by road from the capital and railhead over one of the worst main roads in China, it is not likely that any great improvements will be made, until the Suifu-Yunnanfu line is built, which line as surveyed, will pass through the coal field of Ta Mer Di, 16 miles east of the main copper and spelter mining area. Last year a German house surveyed the mines with a view of supplying machinery, etc., but the Tonking transit dues were so formidable that the firm relinquished the idea.

The next mines of any importance are those in the prefectoral district of Talifu, to the N.E. and N.W. of the lake, where the ores mined are oxides and carbonates for the most part, although pyrites in masses in black ore, seem to be the most plentiful ore. The workings here are in the form of galleries running into a hillside, and are rather better worked than any other mines seen in the province.

The product of these mines known technically on the London market as "Chinese rough copper" yields on assay as follows:—

Copper	95.78 per cent
Silver	32.78 oz. per ton.
Gold	00.514 oz. per ton.
Zinc	1.11 per cent.
Iron	00.87 per cent.

The output of these mines which mostly goes to Burma, does not exceed 900 piculs per annum although the area is large enough and rich enough in ores to give at least 100 times this output.

In the prefectoral district of Yungchangfu, the most westerly district of China, copper is worked on the range that forms the western wall of the Mekong River, by the tribesmen. Here malachite and oxides only are worked and the main output of the mines is silver and not copper, though the yield, which is said at one time, about 50 years ago, to have exceeded ten thousand piculs per annum, does not now give 500 piculs. As in the Tali mines the Mohammedan rebellion is given as the reason for the reduced output, and this is most probably correct as throughout this region the country side is covered with the ruins of villages, workings and other signs of a past industrious people.

Other mines at Weiningchow, in Kweichow, and Hweilichow in Szechwan, just across the Yunnan frontier, also work copper oxides, but in neither of these localities does the output either in quantity or quality compare with those already mentioned.

Copper is also worked at Chuchingfu, where the mines to the west and S.W. of the town, yield small quantities of native copper and oxides, but only enough for the local trade carried on in copper pots and pans. At Wuting Chou, most of the copper used in the provincial copper trade in brass and copper domestic ware, is mined, and in Likiangfu there are evidences that large mines must once have been worked, but the output to-day does not exceed 100 piculs per annum.

North of Atuntzu, between this town and Batang, copper is found in filiform and laminae pieces, in all the many small creeks flowing into both sides of the Mekong, and is washed for alluvially, by the villagers, and lumps weighing as much as two and three catties are found imbedded in creek bottoms. This applies also to the Salween west of this point. Both Salween and Mekong tributaries are washed for gold and copper.

Besides the foregoing workings copper outcrops have been noted in practically every prefecture between 98 E. Longitude and 105 E. Longitude and 23 N. and 28 N. Latitude and as a rule wherever copper is to be found in this area, spelter and silver is found either in the same ores, or at no great distance from the copper ores.

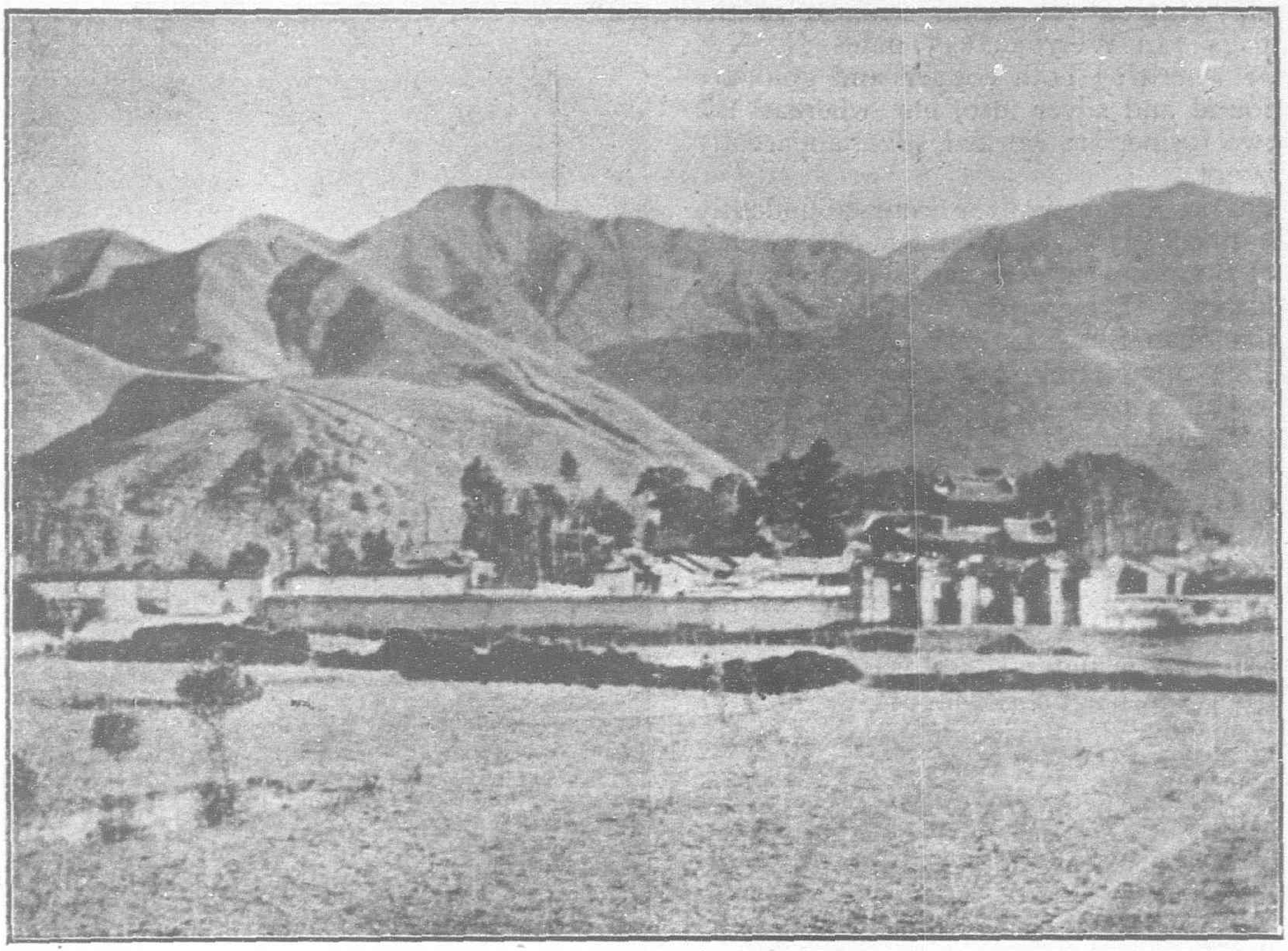
So far as can be ascertained, the gross output for 1912 did not exceed 10,000 piculs, but it is hard to get reliable figures owing to the fact that there are at least ten main roads leading into Burma; only two of them have customs houses on them, and a large part of the output goes down the Chaotungfu road into Szechwan and practically none uses the railway as a means of egress.

If ever Yunnan gets tractor roads, mining knowledge, and just government the copper area will become a world factor, but until this combination arrives, the output will never supply the demand. So far as can be ascertained no attempt has ever been made to separate the silver from the copper, so that the loss to the province from this source alone must be considerable.

Silver

Silver is the next mineral in the point of wide distribution, and this exists chiefly in the form of argentiferous galena, but sternbergite, stephanite, and other sulphides exist, especially in the southeast and extreme northwest of the area.

The ore most worked is galena, for the silver only, the residue being dumped as slag, owing to the fact that there is no efficient means of transportation. Some of the ancient mines were of great importance as witness the Baudwin mines now within the Burma frontier, but in times past within the China line. The slag from these mines alone was sufficient inducement for the Lake Consuls Company to float a capital of £400,000 in 1908 to deal with it. A railway line was built from the Lashio branch, 43 miles to the N.W. to the old slag dump, and a smelter erected at Mandalay, with a result that over half a million tons of lead slag have been treated at considerable profit.

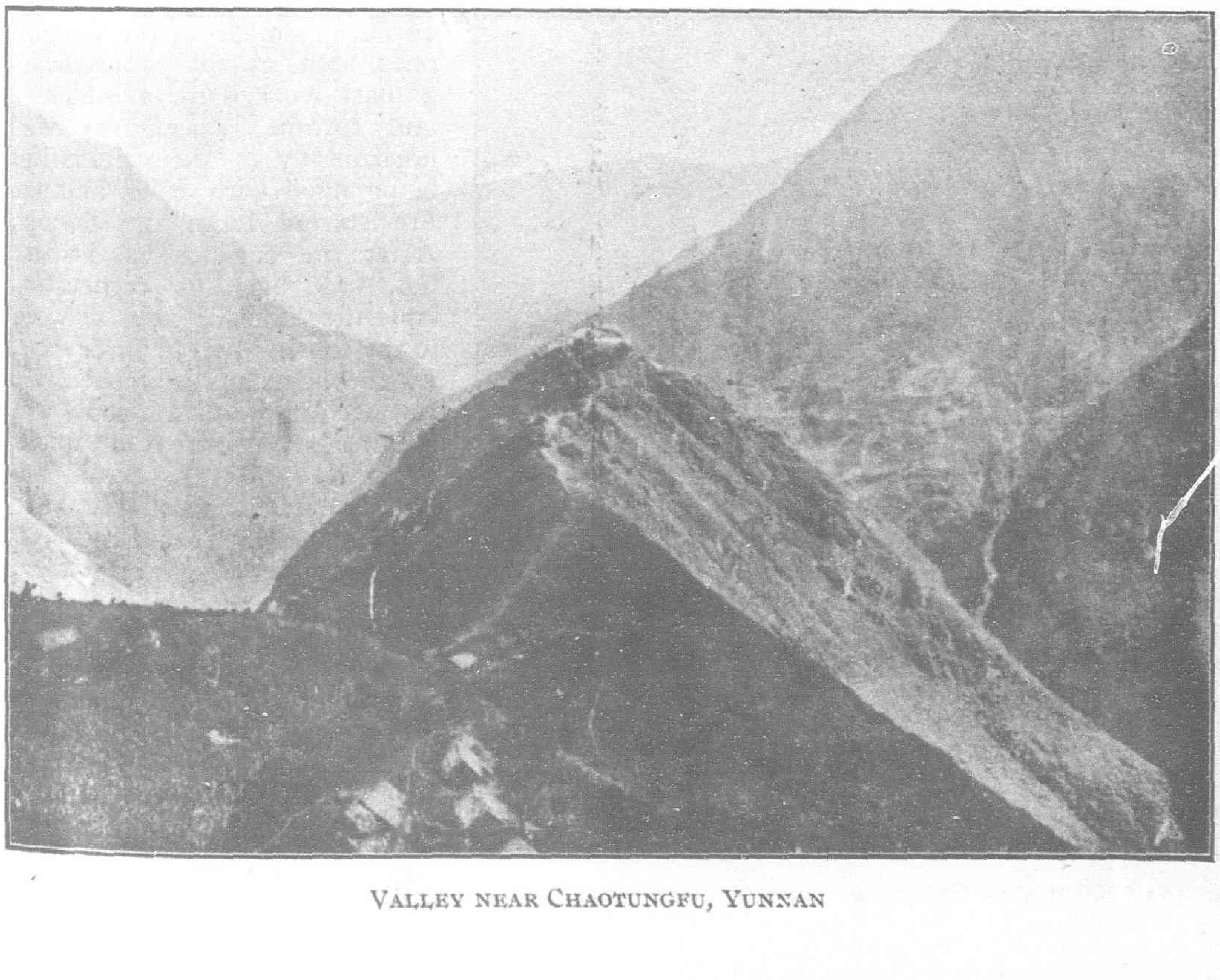


9,000 FOOT HILLS RISING FROM PLAIN NEAR TUNGCHWAN, YUNNAN

At Lopingchow, near the Kweichow frontier, kerargyrite or horn silver, until quite recently used to be mined, and in the region to the north of this town argentiferous mispickel is worked to-day.

In Tungchwan, in the range of hills across the river to the west of the town, silver is mined as galena, and recovered by the desilvering process, the metal being crystalized out, in a method somewhat similar to the Pattison process.

The silver occurs here also in conjunction with zinc, in zincblend, as it does also in Hweilichow in Szechwan, and in conjunction with arsenic and zinc in Tali prefecture, in conjunction with copper in Likiang, but galena is present in every prefectoral district in Yunnan and Western Kweichow, and it is to the galena that the Chinese look for their main supplies.



VALLEY NEAR CHAOTUNGFU, YUNNAN

Silver with zinc cannot be successfully treated by the natives, although they distill the zinc from the ore and leave the silver slag on the dumps.

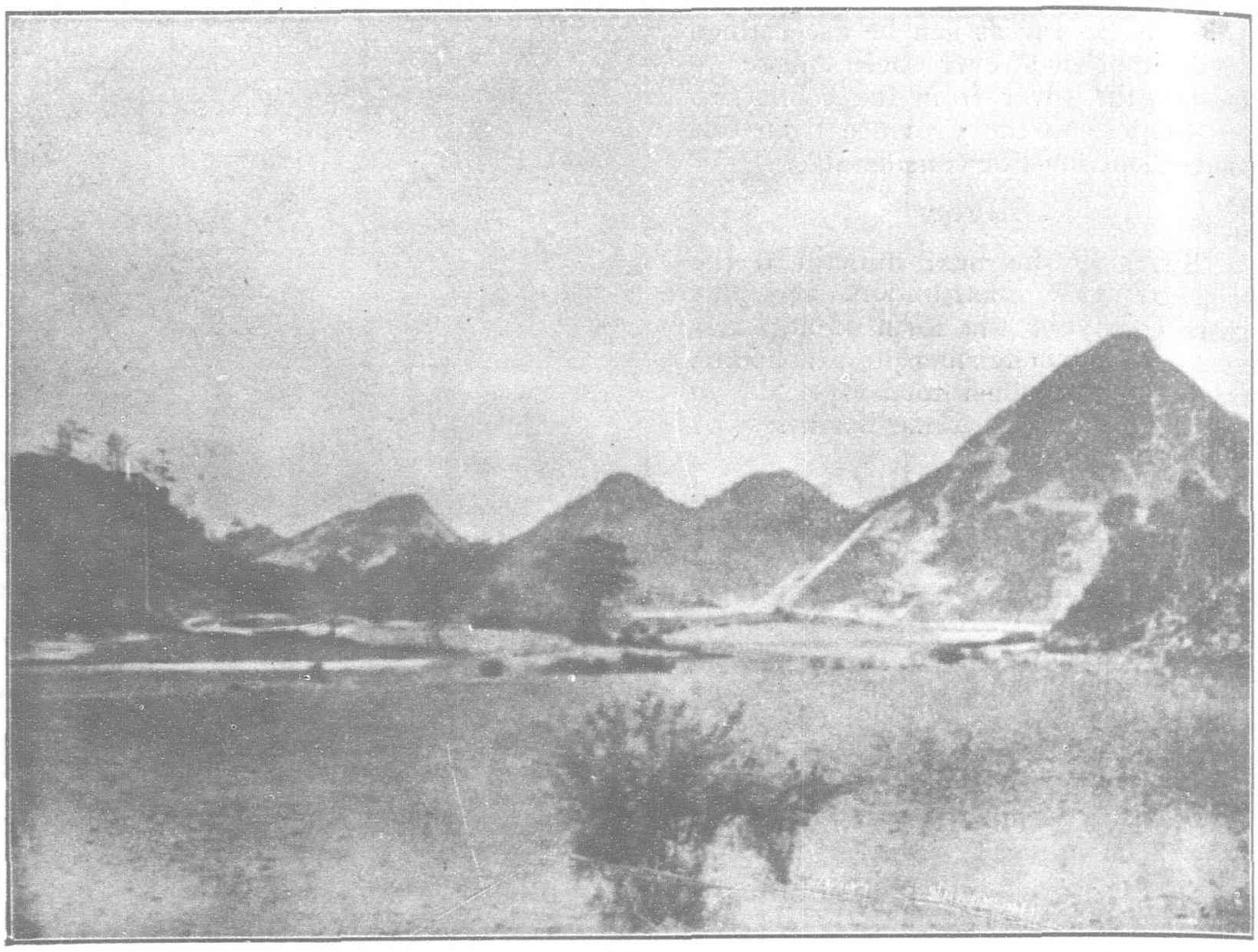
Galena has been collected at Tali, Yungping, Yungchang, Shunning, Menning, Szemao, Linanfu, Kaihwafu, Kuangnanfu, and elsewhere, and shown on analysis to contain from 7 to 31.8 oz. of silver to the ton, but unless transport can be improved and likin and other extortionate charges removed, these ores can never be worked successfully. It is only because time is of no value that the mines are worked at all, actual trial having shown that to make a pound of silver from the richest mine in the area costs at least nine dollars at the mines.

In Kwangsi, Kweichow, and Kuangtung, galena exists over a Y shaped area, with the prong pointing about N.W. and the foot touching the coast near Swatow. At Yungning in Kwangsi, there is said to be a rich mine yielding over 5,000 taels a month, but as no European seems to have noted it, this should be accepted with caution.

Between Weining and Tatingfu in Kweichow, a mine has existed for many years working silver from galena, but its output and methods are unknown. On the extreme western frontier of Yunnan, in latitude 23 on the frontier of the Wa country, silver is so cheap that Indian rupees worth usually from 700 to 770 cash each are only worth 470 to 500. This silver, however, comes from the British side of the line, and is worked by the head hunting Was in their spare time. Mr. La Touche the geological surveyor of India, has found traces of native silver, it is understood, in the tributaries on the West side of the Salween in this region.

Silver is mined also at Talangting (50 miles N.E. of Puerhfu) where the mines are in the hills 22 miles to the N.W. of the town. This deposit has been worked since 1796, but owing to the crude methods employed, fully 25 per cent of the metal remains in the slags. In Weiyuan (45 miles N. Nw. of Puerhfu) both copper and gold are found and silver also, but whereas the two former are worked, silver apparently is not.

In Kwangsi silver occurs abundantly in many places, especially in the gulches of the different tributaries of the West River. It is worked at Kweiping, in the Shan Sha mountains, in the Tien Ping mountains, and in many small workings over the whole of this section. Some of the deposits have been worked for more than 150 years but in no case can the workings be called successful and in no case have the deeper deposits been touched. Silver in the form of argentiferous galena is found in the whole of the western and northwestern part of Kwangtung, and samples taken from the neighborhood of the hills of Yamchow show a contents of 7.80 oz. to the ton. So far as is known there is not, however, any mine in the whole of this or any other western area worked in any but the crudest manner.



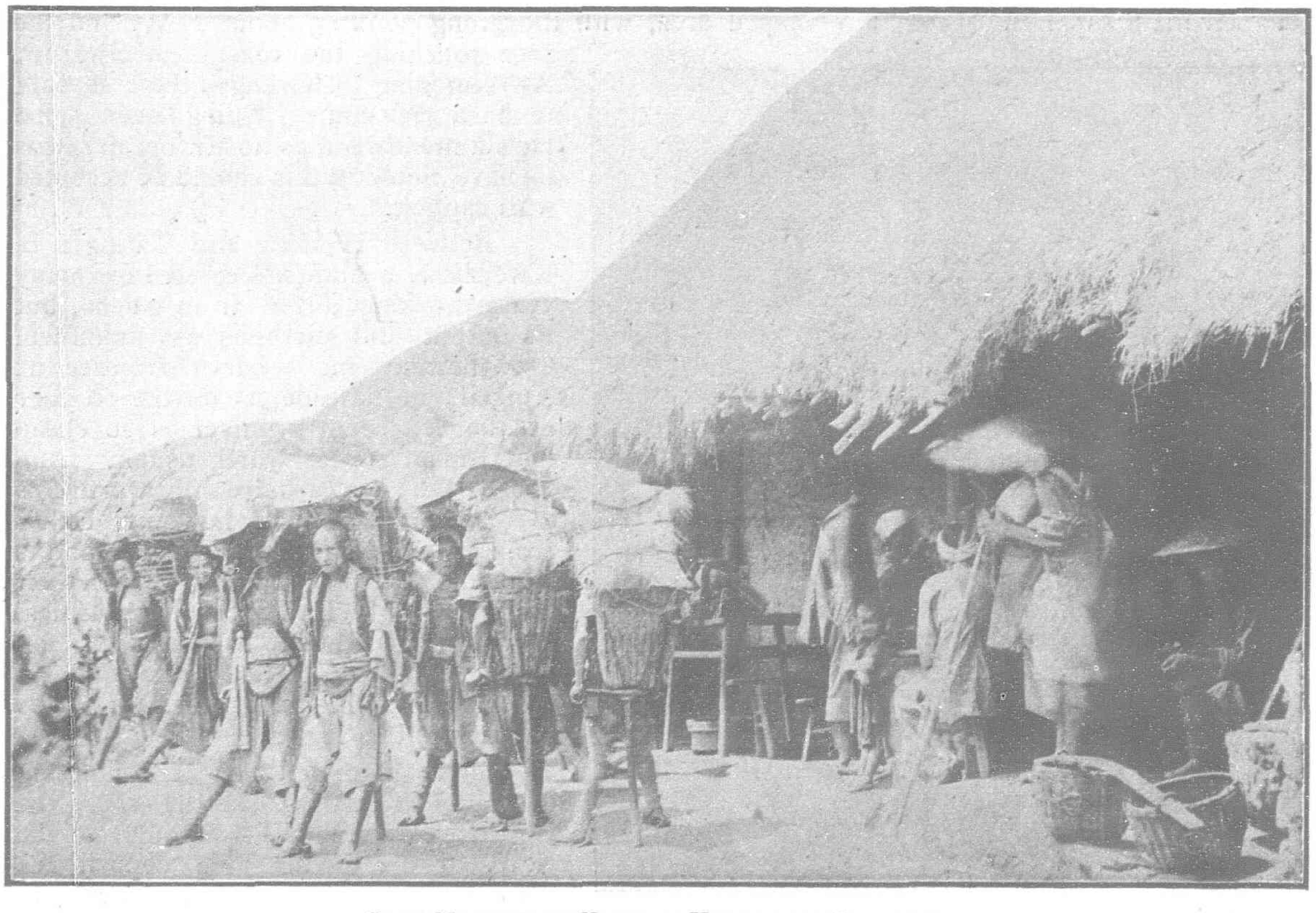
Scene or Weining Plateau in Yunnan

Iron

Iron exists everywhere South of latitude 28, and west of longitude 105, and in patches both north and east of these limits. Throughout Yunnan it is mined and worked in practically every prefecture. It occurs as magnetite, as hematite, and as blackband, chiefly, but titaniferous iron ore, siderite, and sulphate of iron may be noticed.

At Tunghai (See Fig. 2) south of Yunnanfu, iron is melted in rough blast shaped furnaces, about 30 feet high, built of clay and bricks, in a wooden frame with a wooden charging platform on top, the interior diameter being about 36 inches at the widest part tapering both ways to about 20 inches. As a rule no blast except the natural draft is used, and the furnace being charged with equal layers of coke, and magnetite mixed with coal, is fired from the bottom, the fire being replenished from the top, at intervals for about 50 hours, when the furnace is tapped at the slag level with a pole, the slag examined and if judged of right color, the furnace is allowed to empty itself of slag, a layer of charcoal powdered fine is thrown on the molten metal which is stirred with a pole, and then allowed to cool. The product is an iron of very inferior quality, and is worked by hand into pigs about 10 inches by 4 inches by 2 inches ready for the market. At Weiningchow, where an enormous number of cast iron pots in sizes ranging from 6 inches in diameter by 4 inches deep, up to 40 inches in diameter by 12 inches deep are made, the iron is first cast into pigs, then remelted in a small blast furnace, before it is cast. At Pingyihsien, on the Kweichow frontier, the iron ore is first roasted or calcined in heaps in the open over coke, then dropped in water while hot, crushed fine, and mixed with powdered coal, into balls about 6 inches in diameter. These balls are put into a tall furnace, similar to the Tunghai ones, (but usually connected to a blast worked by a waterfall and turbine wheel, revolving horizontally), the interstices being filled with coke, and the fire started from the bottom. After the furnace has become hot, the blast is turned on, and the furnace kept charged to the top for two or three days, when the slag is tapped, the furnace allowed to cool, and the iron run out into water, which causes it to break into small particles, which are after remelted in small hand furnaces, and before cooling are worked with sledge hammers into marketable ingots.

The iron pots are exceedingly finely cast, the thickness of the walls rarely exceeding three-eighths of an inch, and faults even in the largest sizes are rare. Of the articles manufactured, pots are easily first, as caravans with these pots from Weining,



Salt Market of Yunnan Kweichow Frontier

Pingyihsien, and district have been met with as far south and east as Posehting, as far north as Batang, and as far west as Talifu. Plough shares, iron chains, nails, knives, swords, hoes, etc., are manufactured in quantity, the output from Tonghai alone in 1912 being 11,000 piculs.

As a rule the iron manufactured is fine in grain, but exceedingly soft. Coal and lime are usually found with iron throughout the area, and as all are abundant, roads and good government alone are required to make the industry successful.

Iron is also found and worked in the Mingkwang valley north of the treaty port of Tengyuen in western Yunnan, the manufactured iron being cast into pots which are sold in the surrounding country and exported to Burma.

BLAST FURNACE FOR IRON, TONGHAI, YUNNAN.

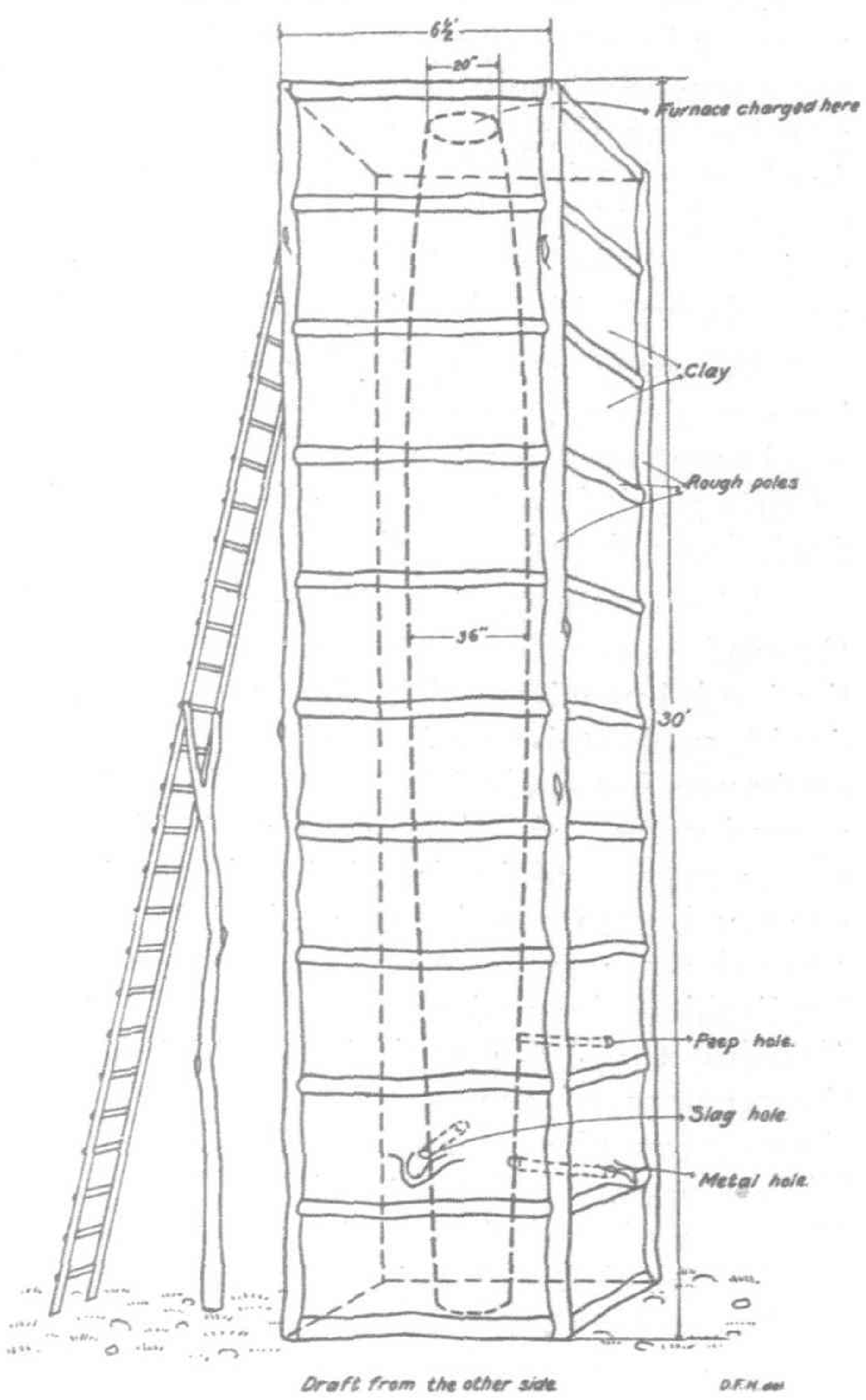


Fig. 2

Before the revolution there was some talk of erecting blast furnaces and rolling mills on the shores of Yunnanfu lake, but although estimates and plans were gotten out, nothing resulted, nor is likely to result, until China can get more credit than she has to-day.

Spelter

Spelter has been worked in the area for many years, for making the alloy from which cash are manufactured. It was not until 1909 that the railway from Tonking entering Yunnan, allowed the metal to be shipped, and the export as has already been noted rose from 231 piculs to over 12,000 in five years. The largest mine is that at Oyinshan (Silver Hill) near the Kweichow frontier, where the output now reaches about 12 piculs per week. The mineral occurs as calamine, and as blend, the latter predominating, and is mined at the summit of a hill about 6,000 feet above sea level. The ore is first hand picked as free of galena and other foreign matter as possible, broken into small pieces, crushed fine, and then treated in clay retorts, (see Fig. 3). In this method, the crushed ore is mixed with equal parts of fine coal, by weight, and a charge consisting of about 25 to 30 lbs. of the mixture is introduced into a clay retort (Fig. 3 c) some 30 inches long, by 8 inches in diameter at the big end with a shelf projecting in the interior about 6 inches from the top tapering to a point at the closed end. These clay retorts are first roughly shaped and baked in an ordinary pottery furnace, before charging.

The furnaces are from 15 to 60 feet long, and are made of burnt brick and masonry (Fig. 3, a and b) supported by arches, one grate with a separate flue to each 6 retorts, three on a side. Each retort is set in an opening left for it in the crown arches, and the large end projects about 12 inches or more above the layer of ash and clay which is used to lute the retorts in place. Such furnaces contain from 100 up to 270 retorts each, 150 being about the average size.

The retorts being about two-thirds filled with the mixture of coal and ore, are placed in the furnace, and luted up, and the projecting top, covered with a lid of clay, is kept as cool as possible by the insulating layer of ash and clay. Fires are lighted on the grates, the furnace heated gradually without either stack or blast, coal being the fuel employed, until white fumes are seen issuing from the lid of the retorts when fires are withdrawn and the furnace allowed to cool off, after which the distilled metal is collected from the tops of the retorts. As there are no stacks, or other means of drawing off the fumes involved in this process, the workers are said to be usually short lived, three years being about the limit it is possible to continue working.

The rough metal obtained from this method of distillation is again remelted for the separation of zinc oxide, which rises to the surface on remelting and is skimmed off, as long as it forms. After this the metal is cast into roughly rectangular ingots, each weighing about 80 lbs., and marketed.

The road from the mines to the railway, is over 120 miles, over three ranges averaging 7,000 feet, and a nightmare of a trail at any time, it is only possible at all for pack animals during the dry season from November till June. The price obtained at the mines averages $6.00 per picul (£10 per ton), mule freight to the railway costs $3 per picul, export duty $9.00 per ton, French railway freight $44.44 per ton, Tonking customs charges examination 90 cents per ton, which makes a total cost to sea board of £21 per ton, which at the present prices of zinc hardly pays (1914). Spelter or zinc occurs in the following districts; and is worked in most of them as at Oyinshan.

Tungchwan, output about 5,000 piculs yearly.

Minchiu on the Kweichow-Yunnan frontier, output about 500 piculs per year.

Hweilichow in Szechwan, output about 2,000piculs per annum.

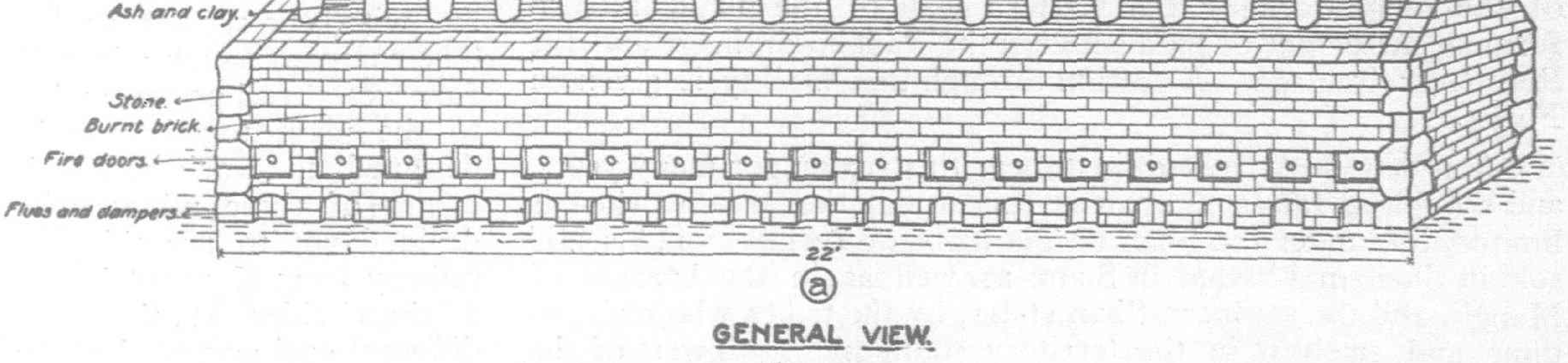
Weiningchow in Kweichow, output about 2,500 piculs per annum.

Likiangfu, output about 1,500 piculs per annum.

Besides many places in the Tali, Loping, Sapushan, Malo districts, where the output does not exceed 100 piculs per annum. Of the total quantity produced, about half is exported, the remainder being used in Yunnanfu, Kweilin, Kweiyang, Chengtu, Suifu, for manufacturing cash, and for making "old" bronzes, idols, etc., used to sell to the unwary tourist and others. In Kwangsi, outcrops have been observed of zinc ores at Silin, Paima, Silishui, and near Paiai, but as this section of China is inhabited exclusively by Shans, no workings were seen anywhere.

Outcrops have also been observed in the Wa States, West of Yunnan frontier, so that zinc would appear to be widely distributed in this region, and is nearly always found near copper deposits.

SPELTER FURNACE AT O-YIN-SHAN, YUNNAN.



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GENERAL VIEW.

Figure 3 a

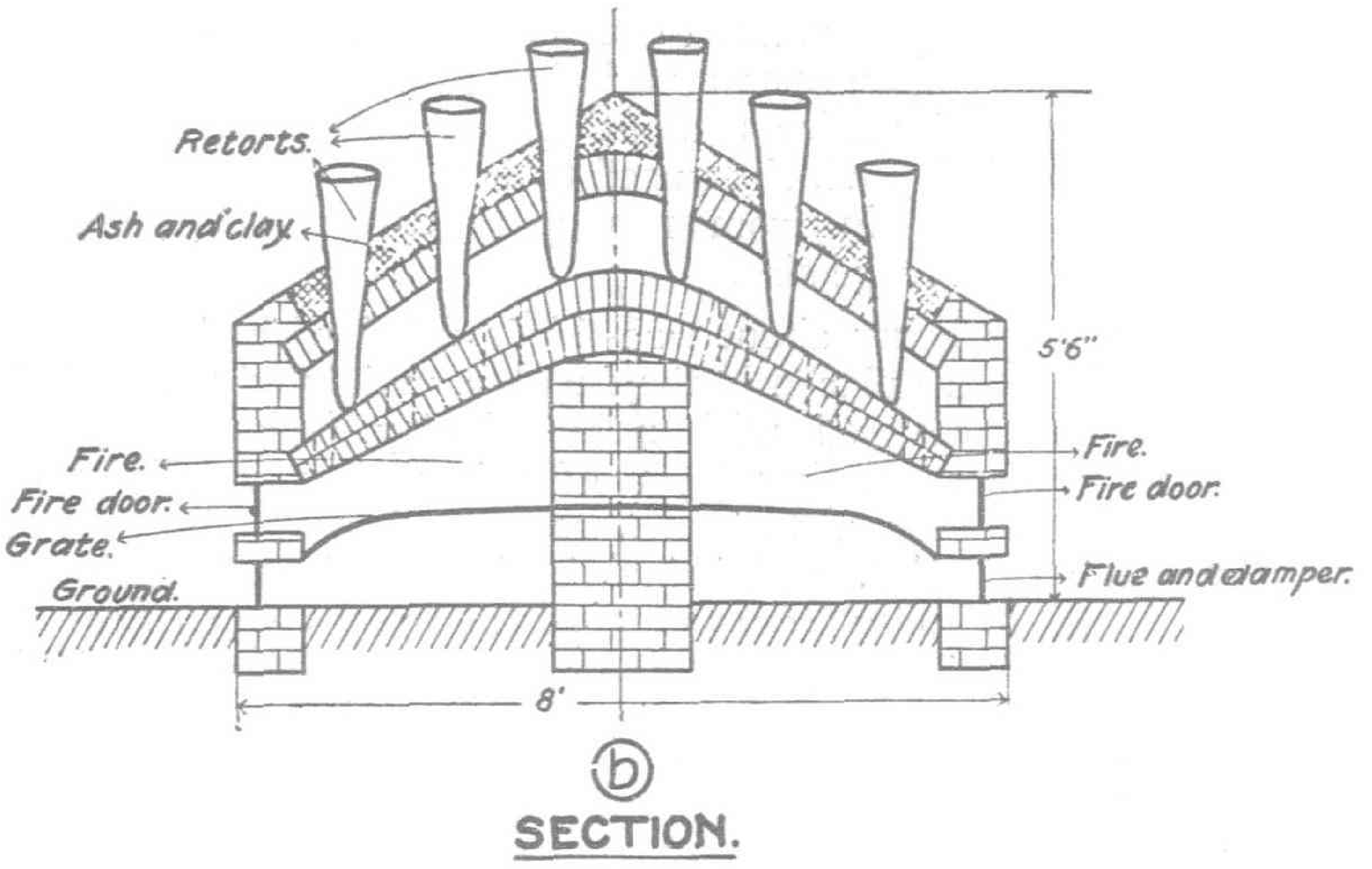

Figure 3 b

Tin

In point of value this metal takes precedence of any found in China to-day. In the year 1912 the total export through the maritime customs was 138,000 piculs valued at £2,700,000, all from the Kochiu mines. These mines are situated on a high bare ridge, at about 5,900 feet above sea level about 20 miles due west of the treaty port of Mengtzu, and about 23 miles west of the French railway station of Pichichai. At this point the railway skirts the east wall of the Mengtzu plain, at a height above sea level of 4,760 feet, while the mines are on the summit of the range forming the western wall of the plain, and also forming the height of land between the Padaho drainage and the Red River drainage. A section through this locality is given in Fig. 4.

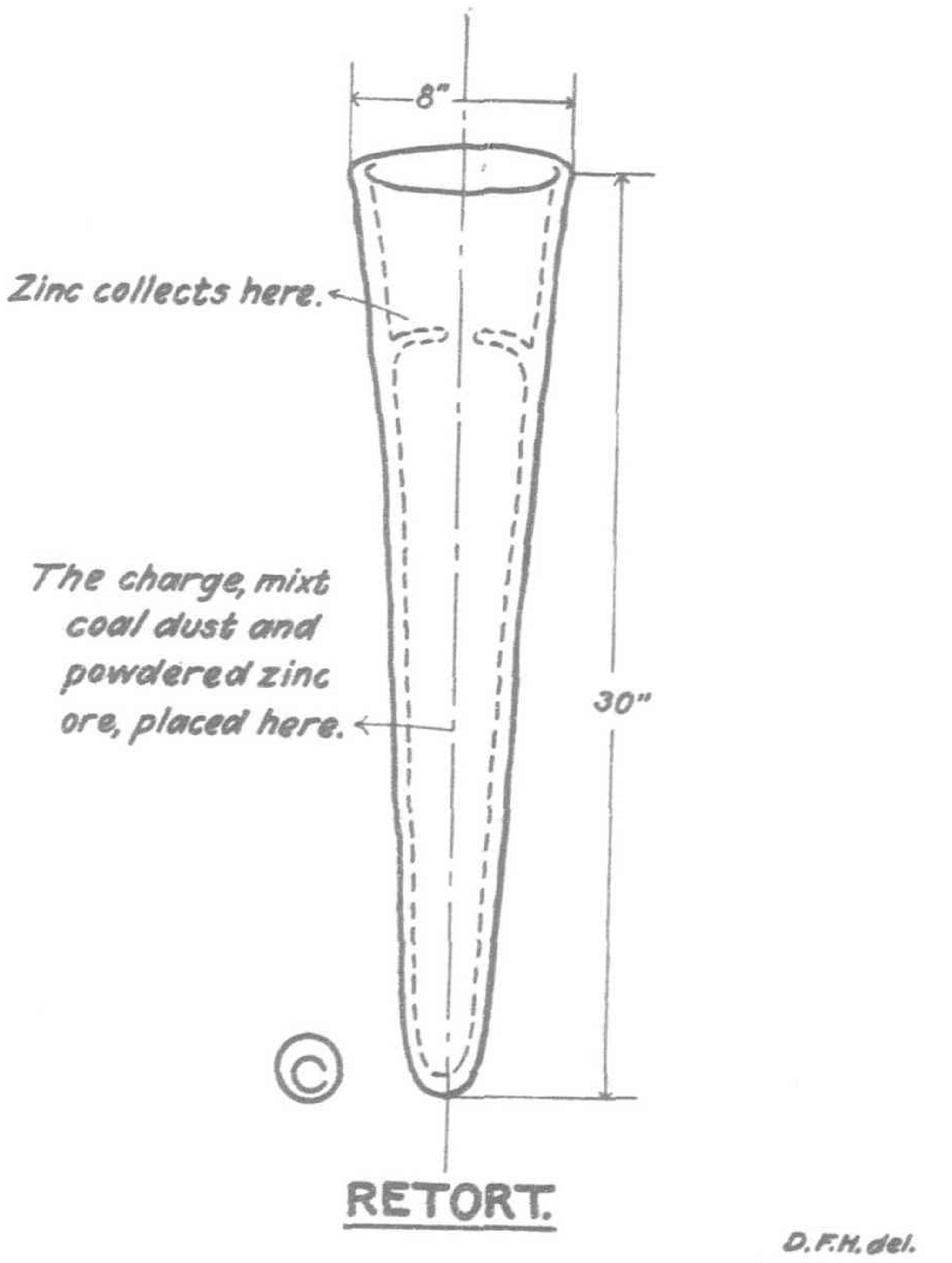
8"
Zinc collects here.
The charge, mixt coal dust and powdered zinc ore, placed here.
30"
c
RETORT.
D.F.H. del.

Figure 3 c

Tin has been mined in or near this region for many years, and though as far as Yunnan is concerned, the area worked is limited, tin, under the Shan or Tia name of "white iron," is still sold in Chengmai bazaar in Siam, as well as in the bazaars of Mengli, and the southern Shan states, by the tribes who claim to mine and smelt it in the territory south and southwest of the southwest boundary of Yunnan.

Kochiu, which is the name of the town, as well as the mining area, is situated in a small oval valley amidst the hilltops of the range and contains a population of about 40,000 people. ⅞ of whom are engaged in mining and smelting tin. As the range is bare granite for the most part, the region is unproductive, and all food stuffs, fuel, house building material, tools, and all the necessities of life, have to be conveyed from the Mengtzu plain and elsewhere by mule or carts, to the mines, hence prices here are relatively high for this portion of China.

Water also is scarce, for the reason that Kochiu is, as has been explained, on a table-land, which does not offer sufficient catchment area for the amount of water required, and in times of drought it is sometimes necessary to bring water, as well as fuel, from the plains below.

The method of working the mineral is the tributary one. Ground owners, or rather certain of the gentry who claim to own the land, but whose title deeds of ownership are open to grave doubt, grub-stake coolies, giving them rice, water, fuel, etc., in exchange for their labour, and buy the tin so won for a price agreed upon. As these ground holders also own the mule and cart caravans, and control the rice and food markets, the coolies, as may be supposed, are robbed in every possible manner. In 1909 the government of Yunnan in conjunction with certain of the landholders formed a company called the "Yunnan Mutual Tin Trading Co.," the capital of which was one million taels, and the purpose of the company was the buying and erecting of a tin refinery plant to refine fifty tons of standard tin per day. This plant was offered by the representative of a great German House, and was designed by them to deal with the particular conditions that existed at Kochiu, to work by the gas process made from coal taken from the adjacent coal mines of Takwang.

It is understood that the engineers of the selling company, after a close survey of the ground, suggested the advisability of erecting the plant at or near the railway station of Pichichai, bringing the ore to the refinery by means of a wire cable-way. This however did not suit the company, as the majority of its directors were suspicious and fearful of the French authorities, and it was decided to erect the plant 21 miles from the railway, on the summit of the range. Delivery of the plant was made during 1910 and 1911, and large numbers of coolies were used to carry the massive machinery up to the summit site that had been selected. A rough road was made, and trolleys brought in from Hongkong, were used to take up the heavier sections.

It is understood that the sellers in their first agreement agreed to give delivery of the plant at Pichichai, but later the representative of the sellers, finding that it was impossible to foretell exactly what the French transit rate and freight rates would be on the plant, altered the point of delivery to the seaport of Haiphong, with a result that the Chinese had to pay a freight and transit rate combined of over 50 per cent. of the value of the plant, to the French authorities, for the privilege of using the Tonkin railway.

The plant was erected satisfactorily during 1911 and 1912, the revolution having little effect on the output, indeed the production for 1912 was greater than it had ever been before (138,000 piculs), and smelting and refining operations commenced in 1913.

The company having exhausted its capital in buying and erecting the plant, had no available funds to buy ore or crude tin with, nor could it persuade the smaller holders to provide it with sufficient material to run the furnaces at full power; representatives of the company visited the agents of various financial houses endeavouring to raise the necessary funds, but met with little success, as there was no security to offer lenders. The company's own mines did not yield sufficient ore to run the furnaces at full power, and the trouble of getting sufficient fuel to the plant together with the fact that the furnaces were designed to work with the Takwang coal (owing to the owner of these mines being out of the "ring" it was after decided not to use this coal, but to bring coal 150 miles by railway from Koupoutchwan, the owner of which mines was also a shareholder in the refinery company), while an entirely different coal was used, all tended to prevent the plant being the success that its design and workmanship should have ensured.

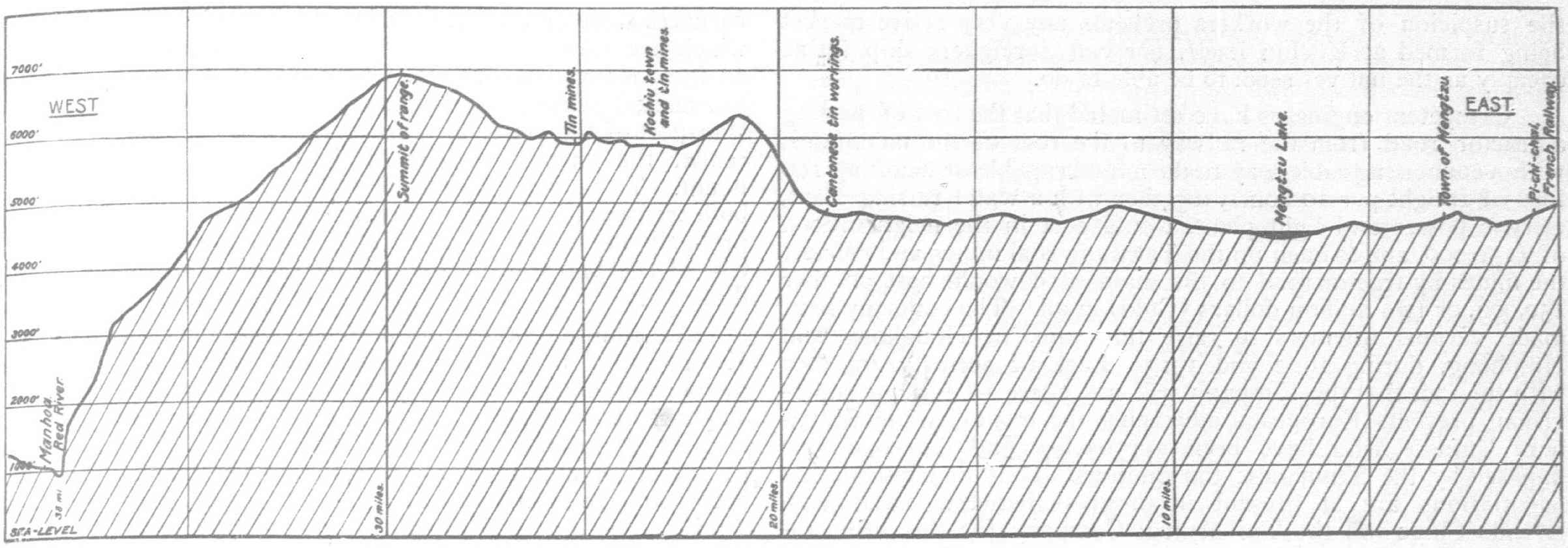

FIGURE 4.—SECTION FROM PICHICHAI THROUGH TIN DISTRICT TO MANHOA

Towards the close of 1913 arrangements were made between the Franco-Russian house of Panoff & Co. and the refinery company, whereby the former advanced the sum of £35,000 to the refinery, which undertook to give the loaners 200 tons of tin, during a certain period, at a firm price, and it is thought that this sum will be sufficient to enable the refinery to show the native smelters the advantages of using the refinery to produce standard ingots in place of the Chinese slab tin, which has to be refined again in Hongkong, and yet again in London before it becomes standard Tin.

In 1911 and 1913, the government of Yunnan seriously considered building a railway from the mines to connect at Pichichai with the French railway. This line was surveyed three times, twice by Mr. Dawley, the engineer-in-chief of the Tengyueh-Yunnanfu-Szechwan railway company, and once during 1913 by Mr. Dobbie, the assistant engineer. As the French railway agreement of October, 1902, gives the French the prior right to build feeder lines connecting with the Tonkin-Yunnan line, the director of that line visited Yunnanfu early in 1912, and offered to build the branch for a cost of two million Mexican dollars. This offer was refused by the Tutuh General Tsai for political reasons, and at the same time a force of native surveyors and engineers was sent to Pichichai, to make the final surveys. Lack of money has so far prevented anything being done, which is perhaps as well in view of the fact that a railway is not in the least required to handle the freight, a tractor road costing one-fifth or less being all that is necessary, as has been pointed out to the authorities again and again by every engineer in their employ.

Various attempts by different foreign firms have been made from time to time, to obtain control of the area, and to work it properly; great distrust against foreigners generally existed at the mines up to the revolution. Contrary to all treaties, foreigners were not permitted to buy either tin or ore, prior to the revolution at Kochiu, and local feeling ran so high in the mining district, that before 1910 it was hardly safe for foreigners to enter the district. This state of thing happily no longer exists, but any attempt on the part of foreigners to work, or own any part of the tin area, would probably result in a series of riots.

Native made tin still predominates. This tin is mined or rather quarried for the most part, by parties of two or more natives, and smelted by them in small open Chinese furnaces, the metal produced containing about 90-92 per cent. tin, the impurities consisting of sulphur, iron, arsenic, copper, and oxides of tungsten, magnesium, etc. This crude tin goes to Hongkong, where a small refinery was erected in 1911 by a German house, and is there refined to 98 per cent. tin, and is sold on that market, as a rule.

Provided that the refinery company can come to some arrangement with these small holders and workers for the refining of the crude tin, and that it is possible to provide cheap and efficient transport for fuel, foodstuffs, etc., inwards and tin ingots outwards, the outlook for the industry is good.

Lack of water, the great problem that still remains to be solved, before the industry can ever assume the importance it deserves, is technically easy of solution, if once the funds are forthcoming, a waterfall on the Manhoa side of the range, on a tributary of the Red River, offering all the power that is required to lift water from that steam to the town and mines, besides giving ample power to afford lighting, and motive power to the suggested cable-way from the Mengtzu plain, the towns of Mengtzu and Kochiu, and surrounding districts.

The production of the area has risen from 68,000 piculs in 1906 to over 140,000 piculs in 1913, according to the figures given in the customs returns, and provided that provision is made for water, transport, and prospecting, there is every reason to believe that the increase will be maintained in the future. At present the tin ingots are carried by mule from Kochiu to the railway station at Pichichai and from there are sent to Hongkong via Haiphong and the Tonking railway, the freight charge on the railway being $45 plus 10 per cent per French ton of 1,000 kilos. In order to conciliate the Chinese government the transit charge on tin using the railway as a means of egress was removed in 1910, hence the freight charge is not excessive considering the value of the material. Prior to 1909 when railway construction brought Mengtzu and Kochiu within less than two days of Haiphong, the tin was shipped by mule to Manhoa, the head of sampan navigation on the Red River, over what is perhaps the worst piece of road in China, conveyed by native boat to Loakai and then taken by river steamer to Haiphong, the whole trip taking nearly a month.

At the present time the fact that standard tin ingots of a purity of 99 per cent cannot be or are not obtained prevents the industry being put on a proper basis, as the tin cannot be sold forward at the top of the market as elsewhere, while the suspicion with which the small holders and workers regard the refinery, prevents ordinary co-operation being used to standardize the output. Great efforts are being made to overcome these difficulties and the establishment of a branch of the Banque D'Indo-Chine at Mengtzu, in November, 1913, has made shipping easier by permitting small shippers to draw against bills of lading in the treaty port, instead of as heretofore having to wait two or three months for the tin to be sold, and for cotton twist equal to its value to be imported.

Four foreigners are employed at Kochiu, mostly Germans in prospect boring, and in the working of the refinery, which is nominally in charge of Mr. Tchung, who was educated as a mining engineer in the University of California.

Since the restriction preventing foreigners buying tin at Kochiu was removed in 1912, several French, German, and Russian firms have bought small lots of tin, but speaking generally the suspicion of the workers prevents any very active market being formed at Kochiu itself, nor can foreigners ship tin as cheaply as the natives seem to be able to do.

Competent engineers have estimated that the cost of putting a tractor road from the railway to the foot of the mountains, with a connecting cable-way to the mines, capable of handling 100 tons of freight per 10 hours, together with a water raising plant, electric power and light plant, would cost in the neighborhood of £150,000, and to open up the Takwang coal mines and connect the mines by tractor road to the main road would cost another £50,000, or two million dollars (Gold) in all. The company have made various attempts to raise this sum, in Hongkong and Haiphong, during 1912 and 1913. Lack of security, together with the fact that the company will not agree to foreign supervision, prevents Europeans advancing the money, while Singapore Chinese who have been approached find the conditions imposed by the Yunnanese too onerous. It is understood that negotiations are at present in progress between the Banque D'Indo-Chine and the Tin Mutual Company for this loan, but the attitude of the country people towards the French, whose Tonking frontier lies only eighty miles to the South, is against the business.

Tin is also found in the Tungchwan district, and in 1910 the lode was opened up for a considerable distance. In this case the ore is stannite, but is worked as an ore of copper and not as tin, and yields a metal that the Yunnanese term "perhtung," white copper. The amount yielded in 1910 is put at 760 piculs, but since the revolution, and its attendant disorder, no work seems to have been done. East of Ilianghsien "perhtung" is also worked but in very small quantities, and purely for local consumption, as it is in the hills to the west of Fuminghsien and Hweilichow. An assay of the Tungchung metal gave the contents as tin 42.567 per cent, copper 49.7 per cent, sulphur 1.3 per cent, and lead 1.8 per cent. Tin is also said to be found south of Shihpingfu between the plain and the Red River, but no workings exist there to-day.

In Kwangsi tin deposits occur at Fuchwanhsien where they have been worked for at least fifty years. In 1910 the government of the province took up the tin and coal workings at this place, and the yield during that year is said to have been about 84 tons of 98 per cent tin, the yield in 1911 increasing to about 100 tons.

In the Hohsien district tin is worked by crude native methods similar to the Fuchwan process and the total quantity of tin that is exported from Kwangsi via Wuchow seems to be about 210 tons for 1911 in the form of Chinese rough slabs averaging about 95 per cent to 97 per cent tin.

Antimony

Ores of this metal are found widely distributed all through upper Burma, Yunnan, western Szechwan, Kwangsi and Kweichow, but lack of cheap transportation, and its relative low market price prevent it being largely worked. The largest known deposits exist in the northern and southern Shan States and are situated in Hsweni State, in Menglem State, and in Mongsher and Chefang States in the Chinese Shan States. In the West and at Likiangfu, Talifu, Tungchwan, Pingyihsien, Toutang in Yunnan province, it occurs as stibnite, as it does also in the many outcrops that have been observed throughout the Singyifu and Singyihsien districts of Kweichow, and in the high bluffs that form the east and west walls of the Poseh river plain in Kwangsi.

Stibnite is the chief ore occurring, but the sulphides with sulphides of silver are found in certain places, the best known being in the hills to the west of the Mekong on the same parallel as Puerhfu, while with ores of lead, it occurs in many places throughout Yunnan and Kweichow.

It is smelted in many places in Burma and Yunnan by the natives, who use it in small quantities in domestic manufactures, into the form of crude antimony containing about 65 to 70 per cent. antimony, but the only place where the mineral is dealt with commercially is at the French constructed and Chinese owned antimony works at Chihtsun on the Tonking-Yunnan railway just above the treaty port of Mengtzu. These furnaces were erected in 1911 and 1912, and deal with the ores which are found to the east of the refinery. in the most approved form of furnaces, and make pure commercial antimony, but the low market prices prevailing lately together with the high cost of transport of the ore to the furnaces, and of the metal to the sea, render the financial success of the operating company open to doubt. To the west and north of the Poseh river plain, where both transport and fuel are cheap, and labor plentiful, it could probably be worked successfully, but wherever examined, the cost of fuel and transport would be such as to render its value doubtful.

As stibnite it occurs in the Fengyi and Penchow districts in Kwangsi and is smelted in crude blast furnaces, the resulting metal containing about 65 per cent antimony and 30 per cent sulphur. It is exported in this form to Hongkong where it is further refined into commercial antimony. At Nanning the price of the crude antimony is about $13.50 per picul. The output seems to have been about 120 tons for the year 1910; 260 tons 1913.

Bismuth

Outcrops in the form of native bismuth, and ores of bismuth glance have been seen and examined in the prefectural districts of Likiangfu, Kochiu, and Yungchangfu, but it has never been observed that the natives work it, or know its uses and values. It is also said to occur in the hills to the S.W. of Posehting, where it has been prospected for by French mining engineers.

Gold

Gold occurs widely and finely distributed throughout Yunnan, S. W. Szechwan, and both Chinese and British Shan States; in over 700 streams examined during the years 1911 to 1913, gold was found in 430 odd, but in no case was it found in sufficient quantity to pay for working that would necessitate heavy transport charges in crossing the ranges.

So far as is known no quartz or auriferous rocks exist in the region, although various prospectors have vainly tried to trace the source of the alluvial gold found in the Salween, Mekong, Irrawaddi, and Yangtze rivers and it was reported in 1901 that quartz yielding 21 pennyweights had been located in the Wa States to the east of Lashio, but no confirmation of the report exists.

For many hundreds of years, Yunnan and S.W. China generally exchanged gold for jade from the Burmese workings, and native manuscripts state that the gold used for the Rangoon and Mandalay pagodas came from Yunnan for many years.

At present gold is worked successfully by dredging on the upper Irrawaddi River, and in 1904 a Rangoon company was floated to work a tributary of the Salween River, the Namma River, situated about 80 miles east of Lashio near the Yunnan frontier, by dredging. This venture proved unsuccessful owing to the occurrence of huge boulders in the stream bed, that stopped free dredging, and ruined the plant. Gold washing by natives takes place at the following places, but it has been noted that at none of them would it pay to install plant on a large scale. Dayulgomba in Tibet, Nalong, Siento, Chitsung on the Yangtze; Talang; near Tsinning; Mili and Kulu on the Yalung River; Hochuka on the Litang River; Macheng on the head waters of the Twangchang Ho (Pa Da-Ho,) Kiangpan on the Yangpi River north-west of Tali. Nearly every one of the numerous creeks that enter both the east and west sides of the Salween, Mekong and Yangtze Rivers between latitude 26 and latitude 29 North are worked regularly by the tribes between seed time and harvest.

The method usually employed is to dam a portion of the bed of a stream to deflect the water, then work the sand in the bed left exposed, by making a rough flume, from 20 to 50 feet long, collecting the gold by slats, on the bottom of the flume, or sometimes where such can be obtained, large bamboos split down the center are used as a riffle, the gold collecting at the roughness of the interior joint which is purposely left untrimmed. As the gold is most finely divided, more than 50 per cent at least must be lost, as powder gold seems to exist, and in no case has a native been seen who made more than 10 grains per day in any one of the northern workings. But at Namma, at Laoshan in the Wa States, at Menglung in the Chinese Shan States, and in certain tributaries of the Salween in Hsipaw State, where gold occurs alluvially in fair sized flakes, careful washing in scientifically constructed riffles, has given as high as 3 pennyweights per yard of dirt washed.

Mica

This mineral exists throughout the region under review in small pockets, but is of little commercial value as the largest seen will not split into clear sheets of more than 3 inches square. One sample submitted by the headman of a village near Pingyuanchow in Kweichow, split into sheets of 5 inches, but this is the best that has been observed, and there is some doubt if it really came from the locality.

Asbestos

This is found in the region to the east and southeast of Pingyihsien in Kweichow, and to the east of the town of Padaho in Kwangsi. Its staple is too short to make it valuable, and the supply seems limited. It occurs irregularly in pockets and is sold by natives in the bazaars for 500 cash a cattie, being used in place of cotton for lining the quilted coats worn by the hill people in winter. No regular mining operations exist as the demand is small and purely local. Samples submitted to the London metal exchange brokers, in 1912 were valued at six pence a pound, a price that would not pay transport on the Yunnan railway alone.

Arsenic

Arsenic in the form of orpiment occurs in many places in northwestern Yunnan, the chief mines being in the Tali prefecture near Chaochow, a village to the south of Tali Lake, and in Menghwa, a district about 45 miles south-easterly from Talifu in Mitu, and Wuli and many smaller outcrops throughout this district. As in other mines, the outcrops only are worked, but as these usually occur at some distance above water level on the sides of mountains, greater depth is obtained, with increased output from these deposits, than from most similar deposits in China.

Realgar is found with orpiment in the same mines, but is considered on account of its reddish tinge of less value than orpiment, and in many cases where the red color is pronounced is discarded by the Chinese workers. Small deposits of native arsenic occur in the shistose rocks to the north of the town of Yunnanyi, but these are not worked, the natives apparently not recognising the mineral in this form.

The price obtained at the mines for clear yellow orpiment is taels 4 per 260 pounds, and the cost of carriage of the quantity to the steamers at Bhamo, the nearest port, is taels 8, likin, octrol, etc., amounting to another taels 3, hence the cost at Bhamo, where the total output is shipped, is about £20 per ton.

Chaochow, which may be termed the center of the industry, is some 17 days by road from Bhamo, over the ranges separating the Irrawaddi, the Shweli, the Salween, and the Mekong rivers. The output of the mines is controlled by the number of mules available, by the state of the roads, impassible during the rains between June and December, and by the quantity of cotton twist available at Bhamo for return cargo. The quantity of people engaged in the industry is about 800 and the output was 7,146 piculs in 1909, 8,114 piculs in 1910 and 8,234 piculs in 1911. In the last two years a small quantity has been shipped east to Yunnanfu.

Mercury

In western and northern Yunnan, cinnabar, or sulphide of mercury, is found in the dolomitic sandstones, and limestone breccias, in the beds of creeks and streams entering the Salween, the Mekong, and the Yangtze rivers. In western Kweichow it occurs in the Singyifu region and in Yuan-shanchiang where it is found and mined in black carbonaceous slates alternating with schists and fine grained sandstones. On many streams, cinnabar on account of its high specific gravity is washed for by the natives much as they wash for gold, while in certain tributaries of the Salween, both gold and cinnabar are found in the bottoms of creek beds.

In the S.W. portions of Szechwan, especially those near the Yalung drainage, cinnabar is regularly washed for by the farmers, during the months when crops are not being seeded or taken up, but as both cinnabar and quicksilver are used in the native arts, especially in the form of vermillion, it is difficult to obtain figures giving the annual production, those which are obtainable from the Customs sources being only the quantity exported through treaty ports, representing probably less than 10 per cent. of the actual production.

Owing to the defective furnace arrangements used in smelting the ores it is found that fully one half the mercury is lost in the process. The form of furnace in general use consists of a small blast-shaped furnace, somewhat like that used for smelting iron, the top of which is arranged to allow the necks of several clay retorts to be inserted. The cinnabar or ores having been placed in the furnace, the smaller grains being moistened and fashioned into balls, together with the fuel, (charcoal for the most part), the fire is started, and the tops of the clay retorts kept as cool as possible. By this method the reduction is effected by the air oxidizing the sulphur, but fully 50 per cent. of the mercury is lost, owing to the retorts not being tight, the furnaces being faulty, and the fuel poor. Some furnaces seen in northern Yunnan, bear the trace of western design, probably being the work of the French fathers. One seen near Yuning in Likiang prefecture consisted of a small shaft, resembling a cupola furnace built of clay, supported by a wooden outer framework, with fireplace at the bottom, on roughly fashioned firebars made of native iron, with an arched roof, containing some twenty openings leading into a reduction chamber immediately above it, which chamber has an opening in the front, closed in working, but opened at the conclusion of the distillation for withdrawal of the residues. Just below the mouth of the furnace from three to five channels open into the furnace, and each of the open channels can be connected with a series of clay cylinders, in the interiors of which the mercury condenses and is collected, since the top of the stack is closed as soon as the fires get well alight and the furnace hot.

In other places, small charcoal pot furnaces are used, with a cylindrical clay extension with a hinged top, made by covering a rough iron framework with clay. The top contains one or more clay retorts, with ledges built into their interior surfaces on which the mercury collects. In practice these are charged with about 50 catties of ore and the same of charcoal, a blast started until the fire burns well, the top then fastened down, the blast stopped, or nearly so, and all cracks luted up with wet clay. After about 8 hours the retorts are broken open in water, and the quicksilver washed out.

In the manufacture of vermillion, a mixture of one part of sulphur with four parts of mercury is sublimed in a clay pot, which is covered with an iron plate kept wet and luted down. The heat is continued for from 18 to 24 hours, and after cooling the pot is broken up, the purer portions of the sublimate separated from the impure by grinding up the mass, washing repeatedly in water the resulting powder, when the purer quality settles at the bottom of the vat, the less pure rising in the form of a scum and is removed.

Nickel

Specimens of nickel ores, consisting of glance, pyrites, and kupfernickel occurring in the gneiss, slates, and quartz rocks of southeastern Yunnan have been seen, and sent to London for assay purposes, but so far as is known no workings for this metal exist in the region. In the N.W. corner of Kweichow near the town of Weihingchow, ores containing nickel in conjunction with bismuth, have been examined, and certain galenas assayed from the Tungchwan region, have been found to contain a small percentage of nickel.

Associated with cobalt the metal seems to exist in ores sent in for examination from the Red River district to the west of Kochiu, but in none of these regions, does any mining seem to go on, for either cobalt or nickel.

Graphite

Specimens of this mineral in massive formation have been seen and examined in the metamorphite rocks near Siaoweisi on the upper Mekong, but appear to be impure and full of hard grit. So far as is known, no workings exist for this mineral anywhere in S.W. China.

Sulphur

In many parts of western and northern Yunnan, sulphur exists in its pure state as a coating or deposit on the mouth of the numerous hot and boiling springs that exist. No attempt has so far been made to export it owing to the lack of transport facilities and resulting high freights. A small shipment made by the writer in 1910 via Yunnanfu, cost more for freight than its market value in Hongkong, hence until shipping facilities are improved this mineral can be of no economic value save in the preparation of native explosives for which it is now used.

Petroleum

So far as is known this mineral is not worked in the area, but natural gas has been seen in many places in the south and west of Szechwan, in the district surrounding Mienninghsien, and it is known that in the salt wells of western Szechwan this gas is used in the reduction of salt. In the far north of Yunnan, in a small cup-shaped valley near the road just north of Kari (latitude 28.12 N 99.15 E) crude petroleum was examined which apparently rose from a fault in the rocks, and formed a semi-dried deposit on the mouth of a small well. Natives state that periodically an upheaval takes place and after a few minutes the oil settles back into the well, leaving a thick and viscid coating which the villagers collect and burn. In the spelter mines to the east of Oyinshan in eastern Yunnan, natives report that in 1908, while mining operations were in progress, a rush of gas, issuing from a fault in the workings, drove the workers out of the mines, and becoming accidentally ignited, burned fiercely for days, until the heat caused the workings to collapse. Little is known of the S.W. of China in regard to oil, and few travellers mention it. Yunnan, and a great portion of Kweichow and Kwangsi, being chiefly inhabited by tribes, who for the most part take little interest in anything apart from agricultural pursuits, dependence has to be put on the scattered communities of Chinese to report on any mineral finds, while the mountain ranges, rough trails and largeness of the area, prevent any systematic prospecting being done even if the temper of the inhabitants would allow it.

Salt

Salt exists and is worked in the following places.—In South-western Yunnan at Weiyuan, Chenyuan, and Kingtung, all in the prefecture of Puerhfu, the chief wells being at Weiyuan. In Eastern Yunnan at Chanyichow and to the north of Kutsingfu, in North-western Yunnan at Yakalo on the frontier of Tibet (corner of Yunnan, Szechwan and Tibet), at Yunglungchow to the west of Talifu. In Anningchow to the west of Yunnanfu, and in many smaller wells and deposits in the west of Yunnanfu, and in many smaller wells and deposits in the extreme north and west, as well as in certain wells in the Chinese and British Shan States in the far west. The Weiyuan wells that supply the greater part of Southern Yunnan are said to yield about 11,000 piculs per annum, and the Mohei wells yield from 2,000 to 3,000 piculs, the whole yield of the Puerhfu district being placed in 1908 at 35,000 piculs per annum.

At Mohei, twelve miles to the northeast of Puerhfu, rock salt occurs in considerable quantity, these mines having been worked since the third year of Yungcheng or 1725 A.D. The salt as found contains about 25 per cent of earth and foreign matter and is prepared for the market by dissolving in water, washing, and crystalizing the salt by evaporation. The yearly yield for 1912 was about 70,000 piculs from these mines. As Yunnan and Kweichow both import salt from Burma, the Shan States and Szechwan, it is difficult to arrive at the actual production, but having regard to the fact that the provincial salt taxation of these two provinces averaged about $2,000,000 prior to the revolution, the quantity obtained may be put at about half a million piculs per annum. Since the revolution, and the accompanying disruption of the revenue collecting department, although the price of salt has risen so high as to place it out of reach of many of the inhabitants, the tax collected has dwindled to less than a million dollars. The method of manufacture is the same all over Yunnan, wells are worked by means of a long rope, wound on a windlass, sometimes by hand but more often by means of buffaloes, bullocks or mules, the windlass in some cases being a huge framework or wheel from ten to fifteen feet in diameter winding a bamboo or fibre rope to which is attached either a skin or wooden bucket for hoisting the brine. Many wells are of great depth, those of Hsik'ungtsing being about 200 feet while those of Chenyuan average from 50 to 90 feet, and wells reported near the Yangtze in Szechwan are said to be over 600 feet. The brine is boiled down in large semi-hemispherical cast iron pots, till it becomes nearly solid, when it is allowed to cool and crystallize the resulting mass being afterwards washed to remove the iron and earth stains, and then re-crystalized. In Yunnan as a rule the salt is very white, but in Szechwan it is darker in color owing to iron staining, which as a rule is insoluble in water.

The contents of these pots are usually 3 piculs per charge, and the salt is then cut into 4 equal pieces, averaging 75 catties each, and is transported in this form, two pieces being a mule-load, to its final destination.

The whole of the western and far northern portion of Yunnan, as well as a large portion of Kweichow, being semi-independent of Chinese rule, salt is worked in varying quantities unofficially by the tribes, who so far as is known pay no taxes to any one for the privilege, and as rock salt occurs on the Yunnan-Cochin, the Yunnan-Tibet, and the Yunnan-Szechwan boundaries, it is impossible even approximately to guess at the actual population engaged in its production, or the amount produced.

Alum

This mineral occurs in the numerous hot springs to be found throughout the region of Yunnan, western Kwangsi, and Kweichow in solution, and is boiled down in iron pots similar to those employed in the manufacture of salt, but the quantity obtained is only used for local need in the manufacture of paper and medicine, and so far as is known is not exported.

Marble

Although not a mineral in the ordinary sense, marble is included in this list, as the mines at Talifu and in other parts of Yunnan, have become famous throughout China, and as the quantity in sight is enormous, with the coming of transportation it will no doubt be better known than it is to-day. About 500 people are employed in quarrying and splitting the stone into the thin panels that are used for making the screens and pedestals for which it is mostly employed. Tali marble has a curious staining of dark green and reddish brown running irregularly through the stone, which in the finished and polished panels bears a strong resemblance to pictures of trees and scenery, but whether this is natural, or partly aided by artificial dyes, is a debatable question. The stone is free from quartz veins and fossils and except for the staining is in every respect a first class stone.

Limestone

As Yunnan is more than 50 per cent limestone in its formation, certain areas contain fine, bright, close grained stones, free of veins, fissures, fossils, etc., and eminently adapted for lithographic stones, but the cost of transporting heavy masses is such as to render them useless in their present position.

Lime

Lime is burnt freely over the whole province, and used in the arts, and for construction purposes.

Gypsum

This mineral is found in crystalline formation in the clay beds of central Yunnan and southeastern Kweichow, and as anhydrite in many of the cavities and caves existing in the limestone pinnacle formation peculiar to the boundary country between Yunnan, Kwangsi, and Kweichow, where it is used by the natives for medicine.

Amongst the many clays to be found, kaolin, plastic, and bole abound in places too numerous to mention throughout the west and south. Wherever Chinese communities or Shan tribes exist these are worked to a small extent for articles of domestic use, but few amongst the other tribes, if any, yet understand the art of pottery making.

Corundum

This is found in the Tengyueh district, in Talifu prefecture, in the Shunning prefecture and elsewhere, and is used in the cuttings of jade, and the polishing of brass and copperware. It is found in association with granular limestone, near the surface.

Platinum

This metal occurs alluvially in the bed of a small creek situated about 50 li north of Yunlungchow, where the natives in washing for gold find it in the form of small grains, in the gold riffles. So far as is known its use and properties are unknown to the workers and no systematic search is made for it.

Tungsten (Wolframite)

This is found in the hills to the south and southeast of Puerhfu in the district of Chen Pien Ting near the borders of the Wa States, and elsewhere in the southeastern corner of Yunnan. It is usually found in small crystalline masses, or as laminae with a semi-metallic lustre, and is washed out by the natives in their search for gold and tin, when its high specific gravity causes it to remain behind in the washings. So far as is known the mineral is not sold or worked in Yunnan, but in southern Burma, in the neighborhood of southern Moulmein, some hundreds of Chinese *work* the *deposits systematically*.

This general list of the more important minerals is by no means exhaustive, the country being for the most part unsurveyed, the natives suspicious of foreigners, the roads and travelling generally a difficult matter at the best of times, and often impossible during the rainy season, few Europeans have ventured to to make more than a passing trip through it. With the exception of the prospecting done by the Yunnan syndicate between 1900 and 1910 and the railway surveys made by Major Davies and Captain Watts-Jones, an account of which are to be found in the admirable work entitled "Yunnan" written by the former officer, no really authoritative work exists on this the greatest Asiatic mineral field. To the most of China, Yunnan and Kweichow remain practically unknown, and officials ordered there by the central government seldom if ever see more of the country than is absolutely necessary and have little in common with the many tribes who people it. In climate Yunnan is ideal, the greatest heat in summer being less than 90° whilst in winter it is seldom that 10 degrees of frost are registered save in the far northwest. The people are quiet, peaceful, and good workers. The population of the two provinces is about 12 millions, and the area is 210,000 square miles, so that the country cannot be said to be over populated. Save in the Salween and lower Mekong gorges fever is unknown, and the country is a healthy one and worthy of greater attention being given it by foreigner and Chinese alike. It should be noted however that although Peking has made many admirable laws in the past, as is being done to-day, such as the mining code, it is by no means certain that the provinces will see eye to eye with the central government in the matter of foreign participation in mining. The people will usually be found quite willing to combine forces with the foreigner, but it is by no means certain that the petty officials will allow what they have come to regard as their private property to be used by foreigners, and this term is used in the west country equally towards Pekinese, Cantonese, or any people who do not come from these two provinces.

France alone of all the European nations seems to realize the value of Yunnan, and this fact should be sufficient to make the opening up of the province seem desirable to Peking, but unless some guarantee can be given prospectors that their rights will be respected, their workings relieved from boycott and a free hand given them, it is unlikely that much will be done, but British and American financiers might well employ themselves in examining those mineral deposits whose geographical positions render them possible of economical working in the area, and endeavouring to reach some understanding with the provincial governments which would permit co-operative working.

Authur J. Moore Bennett.
June 1914.

SHANTUNG INDUSTRIES

The German-Chinese Silk Industrial Company, founded at Berlin in 1901, established a large steam filature at Tsangkow during 1902-03 for reeling tussore silk after a new method, by which it was hoped to obtain a finer and stronger and also more colourable ligament than produced hitherto. The first trials made with wild cocoons from the neighbouring Chucheng district proved a failure, owing to insufficient strength of the ligament. The Manchurian cocoons, tried next, were found satisfactory, and, special Customs facilities having been obtained for importation, these only were used afterwards. The training of a staff of men, women, and children, selected from the rural and fishing population, proved a difficult task and took several years, during which, naturally, more waste than silk was spun, and the company worked at a loss. By the end of 1907 a staff of 1,200 hands was fully trained, and the company was able to put on the market tussore silk of unsurpassed fineness and of the quality which had been looked for in the beginning, and which enabled weavers and dyers to produce a new style of tussore silks of a delicacy of tints and smoothness of material hitherto unattained. The cost of production of this silk was about 25 per cent. higher, and the price realised in Europe some 40 per cent. higher, than the best Chefoo reeled wild silk. Owing to misconceptions and misunderstandings between the Berlin head office and the Tsingtau manager, the company stopped working in 1909 at the very moment when full success appeared in view. In 1910 six Chinese merchants of Tsingtau and Chefoo formed a limited liability company for the purpose of taking over and reopening the factory, under the former manager; but the outbreak of the pulmonary plague in January, 1911, and the fear of having to reckon with this deadful disease for a number of years, caused the company to dissolve and give up the project. The plague having disappeared as quickly as it came, a new Chinese company was formed.

In the Poshan district are numerous potteries, the decayed slate occurring there giving an excellent clay. The output of earthenware in this region is estimated at 160,000 piculs per year. A factory for glazed pottery was started at Poshan, under government auspices, a few years ago. It produces vases of all shapes and dimensions, jars, flower-stands, flower-pots, etc., in two colours—a bluish grey and tea colour,—perfect in form and glazing, looking like porcelain. A number of specimens, presented by the provincial government, may be seen in the Tsingtau Customs Museum, which contains a considerable collection of Shantung manufactures and products of all kinds.

The Tsinanfu paper factory belongs to a Chinese company, with a nominal capital of Tls. 260,000, of which the provincial government paid Tls. 30,000 and supplied buildings to the value of Tls. 70,000; of the balance, only Tls. 60,000 are paid up. The company has the monopoly for Shantung, and shares may not be sold to foreigners. The factory started work in 1909; the machinery was supplied by a German firm and set up by a German engineer. The material used is two-thirds rags and about one-third foreign imported paper pulp. The output is reported to be of good quality and is under 300 piculs daily—about one-third of that possible,—and the factory hardly pays expenses.

The Germania Beer Brewery, established in 1904, supplies Tsingtau and most of the northern ports, to which 32,000 gallons were exported in 1911. The brewery is registered at Hongkong as the Anglo-German Brewery Company, Limited. The Gomoll Brewery brews Berlin Weissbier; its export is insignificant.

The Iltisbrunnen Aerated Water Company manufactures aerated water of any description, and exported during 1911 about 18,000 dozen quarts. The Iltisbrunnen is a natural spring in the wooded parts of the Iltis Hills.

A cask factory was started in 1911, to supply iron casks for bean and ground-nut oil exported abroad.

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THE MONARCHICAL MOVEMENT IN CHINA

In our last issue we outlined the measures that had been adopted for the election of Citizen's Representatives who were to decide by ballot whether the republican system of government was to be maintained in China. When the elections began it was noteworthy that good order prevailed practically all over the country. It is true that in Shanghai and Hankow rumours were industriously spread foreshadowing grave disturbances, and a few arrests were made, but all official reports showed that in the Yangtsze Valley and South China there was little likelihood of the development of serious unrest.

The voting was conducted on different dates in the various provinces. The first to complete their balloting, Chihli, Fengtien, Kirin, Shensi and Hunan, were unanimously in favour of the re-establishment of monarchy, and nominated His Excellency, President Yuan Shih-kai as Emperor. The result of the balloting was published on October 28, and it was informally notified to the Legations in Peking. That afternoon the Japanese Chargé d'Affaires, Mr. Obata, accompanied by the Minister for Great Britain and the Minister of Russia, called upon the Chinese Minister of Foreign Affairs, Mr. Lu Cheng-hsiang, to tender certain "advice." The nature of this "advice" is explained in an official communiqué that was simultaneously issued in Tokyo, the text of which is given elsewhere. Briefly, the statement was made that though China appeared to be tranquil, there was grave danger of disturbances arising if the measures adopted to learn the will of the people on the monarchical question were proceeded with. It was suggested that the *status quo* should be preserved for the present, and the change in the form of government postponed until a more opportune time. The British Minister, while associating himself with this "advice," asked the Chinese Minister of Foreign Affairs if the information in the possession of his Government warranted confidence that there would be no disturbances attendant upon the change in the form of government. Mr. Lu Cheng-hsiang, in reply to the "advice" thanked the Japanese Chargé d'Affaires and his companions for their good will, and assured them that as the question of the form of government had been raised by the people themselves and had been submitted to the people themselves for decision, there was no ground for apprehension.

The communiqué issued by the Japanese Foreign Office was in the following terms.—

> "A movement has recently been afoot in China for a change of the national constitution and it now appears to have taken a rapid turn towards the realization of this aim. At present, when as yet there is little prospect of an early conclusion of the war in Europe and when a sense of misgiving prevails, every possible effort should be made to avoid the creation of a situation in any part of the world prejudicial to peace and tranquillity and thus prevent the outbreak of a new complication.
>
> "Although it would appear as if there were throughout the country no great opposition to the establishment of a monarchy, careful observation of the actual state of affairs in China, based upon information possessed by the Imperial Japanese Government, shows that it is undeniable that such appearances are more superficial than real. The undercurrent of opposition is far stronger than would be imagined and a feeling of unrest is spreading to all parts of the country. Reviewing the results of President Yuan's administration during the past four years, it will be found that the disturbed state of the provinces is becoming daily more tranquil and order now reigns in the country. If the President is resolved to maintain the political *status quo* of China and leave unaltered the line of progress he has taken, it will not be long before order is completely restored and perfect repose and tranquillity are assured in the country. Should, however, a sudden move be made by the President to establish a monarchy, it is quite possible that the spirit of opposition would immediately give rise to the risk of disorder and disturbance and China would once more be thrown into serious danger.
>
> "In the face of the present situation and having regard for the importance of the interests involved, the Japanese Government cannot but feel deep concern for the possible recrudescence of dangerous conditions in China. Furthermore, should disturbance break out in China it would not only be a great misfortune for her, but would do immeasurable harm indirectly to Powers having important interests in China, particularly to Japan, who has special relations with China. It is also apprehended that the general peace of Eastern Asia might thus be endangered. In view of such a state of affairs, the Imperial Japanese Government, solely actuated by a desire to preserve the peace of the Far East by timely

precaution, decided to approach the Chinese Government pointing out to them the fact that there was in the present situation. cause for grave anxiety and enquiring if the Chinese Government was fully convinced that it was capable of attaining peacefully the end of the monarchical movement.

"The Imperial Japanese Government will then present its views in the most candid and friendly manner with the end in view that the President of the Chinese Republic may be presuaded to adopt in the interest of all concerned the wise course of postponing the proposed scheme of changing the form of Government in order to prevent any outbreak of unfortunate disturbance and to consolidate the peace of the Far East. The Imperial Government accordingly has given the necessary instructions to the Japanese Chargé d'Affaires in Peking. In taking this step the Imperial Government has no intention of interfering in the domestic affairs of China. Their action is prompted solely by a desire to perform what they conceive to be their duty to a friendly neighbour."

On Monday, November 1, Mr. Tsao Yu-lin, Vice Minister of Foreign Affairs, with Mr. C. C. Wu, Councillor of the Foreign Office, visited the Legations of Japan, Great Britain and Russia and read a reply to the "advice" given substantively in the following terms:—

"There has been for some time a strong section of the people in favour of monarchy and more recently their ranks have greatly increased, including the most powerful and influential men in the country, and the undercurrent of agitation for the change in the form of government has daily grown stronger. The Chinese Government has always opposed the movement. But in the light of recent developments, if it were to resort to forcible suppression not only would the will of the people be ignored but there would have been considerable danger to peace and good order. Consequently, the Chinese Government has had no other course but to promulgate the bill passed by the acting Li Fa Yuan to organise the Assembly of Citizens' Representatives in order to determine this constitutional question in accordance with the wishes of the people. It will be remembered that the President, on the 9th of September, in a passage to the Li Fa Yuan, expressed the opinion that the proposed change was unsuitable to the circumstances, thus officially stating his personal disapproval of the change. Then after the promulgation of the law above stated, he issued a mandate on the 10th October stating that any hasty and rash change was undesirable and admonishing all superintendents of elections carefully to observe the provisions of the law, instructions which were again repeated in a circular telegram on October 12th. This shows that there has never been any intention of bringing about a hasty change. That the matter has had to be referred to the decision of the people is because, according to the Constitutional Compact of the country, sovereignty is vested in the people.

"The reasons for the general desire of change are that with China's immense area, the diversity in the five races, and the present standard of education of the masses, the frequent change of the head of the state under a republic will be fraught with great danger not only to Chinese life and property but to foreign interests as well. That this danger is not imaginary is shown by recent events in other countries similarly situated. Furthermore, during the four years since the establishment of the Republic men of wealth have refrained from investing their capital, business men make no permanent plans, administrators form no fixed policies and a general feeling of instability prevails. Such are the people's reasons. As a large majority of the people in the country desire and expect the change and as the question has been referred to the people's representatives for decision, and with political conditions unsettled, trade at a standstill, men's minds expectant, if through the dissemination of false rumours of evil persons untoward events should result, not only would Chinese suffer injury but foreigners would also be alarmed. So long therefore as the constitutional question remains unsettled so long will there exist an element of danger. Particularly is this so, since at the time of the communication of the advice, five provinces have already, through the Citizens' Representatives, declared for constitutional monarchy. The hope and expectation of the Chinese Government are that foreigners resident in China will pursue their business in security and that peace of the Far East will be maintained.

"When the discussion as to the form of government was at its height, the Chinese Government, apprehensive of danger, repeatedly telegraphed to the Provincial Authorities to ask whether they could absolutely maintain order. The reply in each and every case was that if the will of the people was not ignored, they would be responsible for public order so that when the change should be carried out no untoward events would occur. No report has been received of any strong opposition nor of anything which should cause anxiety as regards Shanghai, the Yangtze region, and South China. Naturally, the sources of information available to foreigners cannot be as full and accurate as those of the Chinese. The Chinese Government can only place full credence on these provincial reports.

"There is a small number of rebels taking refuge in foreign countries and other localities beyond the reach of Chinese law. They will always seek to stir up disturbance whether the government be a republic or a monarchy,—as in the past so in the future. But aside from dissemination of rumours and incitement to sedition, they have absolutely no power or influence, and during the last few years whenever they have created disturbances the same have as soon been suppressed. The provinces are now taking special precautions against them; and it is hoped that the Governments of the Powers, in all localities beyond Chinese jurisdiction, will co-operate in future, as heretofore, in keeping them under restraint.

"The Chinese Government appreciates the friendly spirit of the advice and the declaration that there is no intention of interference in China's internal affairs. The Chinese Government is, like the Governments of the Powers, animated by the desire to maintain the peace of the Far East and they may rest assured that the Chinese Government will spare no means to attain this common aim.

"In the reply to the British Government, the question addressed as to whether the Chinese Government was confident that the change in the form of government could be carried out without untoward events was further answered. The reply stated that the Chinese Government is at all times, in accordance with international law, responsible for the maintaining of order. In the carrying out of the change, the Chinese Government is confident that there will be no untoward events."

On Wednesday, November 3, Mr. Conty, the French Minister, under instructions from his Government, associated himself with the "advice" given by Japan. On the other hand a telegram from Washington stated that Mr. Lansing, Secretary of State, had declined to express to Baron Chinda, the Japanese Ambassador, his views regarding the movement to change the form of Government in China, as such an expression might be construed as interference with China's internal affairs.

While this interchange of diplomatic views was being held the elections of Citizens' Representatives, and balloting in those provinces where the elections had been completed were peacefully proceeding. There was, however, considerable perplexity expressed in regard to the real meaning of the intervention of Japan coming as it did after the elections had actually started. Count Okuma, the Japanese Premier, and Baron Ishi, the Japanese Minister of Foreign Affairs, had both expressed the opinion that the question of the form of government in China was one that solely concerned the Chinese people. Some difficulty was felt in reconciling these utterances with the action that almost immediately followed.

The Election Law of the Assembly of Citizens' Representatives.

A certain amount of misconception has existed with regard to the elections which have been proceeding and have now been concluded to form the body known as the Assembly of Citizens' Representatives, constituted for the purpose of determining whether the Republican form of government shall continue or whether it shall be replaced by the Monarchical form. As the whole procedure is of historical interest we give below an explanation of the law under which the elections were conducted.

The election law of the Assembly of Citizens' Representatives is based on the election law of the National Convention, promulgated on March 12, 1915, and that is in turn based on the election law of the Li Fa Yuan, promulgated on October 27, 1914. In order, therefore, to have a clear idea as to the elections at present going on, it is necessary to know not only one law but all three laws, and, further, certain regulations governing the operation of those laws issued from time to time.

Classes of Representatives

The Citizens' Representatives are of the following nine classes:—

1. One representative from each district in all provinces and special administrative territories of the country, amounting in all to 1834.
2. Thirty-two representatives of Outer and Inner Mongolia.
3. Twelve representatives of Tibet.
4. Four representatives of Kokonor.
5. Four representatives of Mohammedans.
6. Twenty-four representatives of the Eight Banners.
7. Sixty representatives of the Chambers of Commerce and Chinese Residents abroad.
8. Thirty representatives of those who have performed meritorious services to the State.
9. Twenty representatives of learned and eminent scholars.

Representatives of Provinces and Special Administrative Territories

In Art. 4 of the Law on the Organization of the Assembly of Citizens' Representatives it is provided that the representatives of the citizens in the provinces and special administrative territories shall be elected by the successful candidates of the Primary Election for the

National Convention in each district, and by those who have the qualifications to be candidates in the Final Election of the National Convention. In Art. 19 of the law on the Organization of the National Convention it is provided that with regard to the qualifications of the electors and the candidates of the election and its procedure, the provisions of the Election Law of the Li Fa Yuan shall apply. In Art. 4 of the Election Law of the Li Fa Yuan it is provided:—

Any elector of the Primary Election of a province or special administrative territory who possesses one of the following qualifications, shall be eligible to be a candidate of the Primary Election:—

(a) Who possesses the qualifications as provided in Clause *a* of Article 2, and who has one year or more of experience.

(b) Who has the qualifications provided in Clause *b* of Article 2, and who continues studying in a high-grade technical school or who has an education similar to that of such a graduate.

(c) Who has the qualifications as provided in Clause *c* of Article 2 and who has immovable property to the value of $10,000 or more.

(d) Who has a capital of $10,000 or more as provided in Clause *d* of Article 2.

The qualifications provided for in Art. 2 of the same law are possessed by a person:—

(a) Who has held or is holding the position of a high official.

(b) Who has graduated from an institution not lower than the middle school or who has an education similar to that of such a graduate.

(c) Who has immovable property of $5,000 or more.

(d) Who has a capital of $5,000 or more invested in commerce or industry.

The above qualifications in Article 2 are for *electors* at the Primary Election of the Li Fa Yuan, and the qualifications provided for in Art. 4 are for *candidates* in that Primary Election. Hence the provisions of the latter are much more stringent than those of the former. The successful candidates of the Primary Election of the Li Fa Yuan possessing the qualifications of Art. 4 are also the successful candidates of the Primary Election of the Citizens' Convention; and are likewise the successful candidates of the Primary Election of the Assembly of Citizens' Representatives.

With regard to those who have *qualifications to be candidates in the Final Election* of the National Convention, Art. 5 of the Election Law of the Li Fa Yuan provides.—

Chinese male citizens above thirty years of age having one of the following qualifications shall be eligible to be candidates and to be elected members of the Li Fa Yuan:

(a) Who has rendered meritorious services to the country.

(b) Who has been a high official for five years or more.

(c) Who is a learned and eminent scholar.

(d) Who has graduated from an institution not lower than the middle school after a study of not less than three years either in China or abroad, or who has a similar education.

(e) Who has been a teacher of an institution not lower than the high-grade technical school for three years or more.

(f) Who has immovable property of $30,000 or more.

(g) Who has a capital of $30,000 or more invested in commercial or industrial enterprises.

The above provisions are more stringent than those provided for in Art. 4. because of the supreme importance of the problem of the change of the form of State. Unless the best qualified citizens are elected the real will and desire of the people will never be ascertained.

Mongolia, Tibet, Kokonor, and Mohammedans.

In Art. 5 of the Law on the Organization of the Assembly of Citizen's Representatives it is provided that the representatives of the citizens of Mongolia, Tibet, Kokonor and Mohammedans shall be elected by single election by the electors of the Combined Electorate of Mongolia, Tibet, and Kokonor for the Citizens' Convention. According to the provisions made in Art. 19 of the Law on the Organization of the Citizens' Convention, the provisions made in the Election Law of the Li Fa Yuan apply, which are to the effect that the electorate of Mongolia, Tibet and Kokonor shall consist of hereditary princes, dukes and nobles above thirty years of age and other persons who hold similar qualifications.

Detailed Regulations enumerate who are these hereditary princes, dukes, and nobles and also define who are the persons having similar qualifications.

The investigation of the qualifications of the electors and candidates of the above mentioned class is conducted by the Board of Mongolian and Tibetan Affairs, and the Superintendent of Elections may ask the superior officials of the various localities to hold local elections at their localities, or for reason of convenience in voting, may organise a combined election in Peking.

In Arts. 6, 7, 8 and 9 of the Law on the Organization of the Assembly of Citizens' Representatives it is provided:—

Eight Banners.

The Representatives of the Manchu, Mongolian and Chinese Banners shall be elected by single election by the hereditary princes, dukes, and nobles of the Banners in the Special Central Elections for the Citizens' Convention.

Chambers of Commerce and Residents Abroad.

The representatives of the Chambers of Commerce of the whole country and Chinese Residents abroad shall be elected by single election by the merchants, artisans and industrial men possessing capital of $10,000 or more, and Chinese Residents abroad possessing commercial or industrial capital to the amount of $30,000 or more, in the Special Central Elections for the Citizens' Convention.

Meritorious Services.

The representatives of those who have performed meritorious services to the state shall be elected by single election by those who have performed meritorious services to the state in the special Central Elections for the Citizens' Convention.

Learned and Eminent Scholars.

The Representatives of the learned and eminent scholars shall be elected by single election by learned and eminent scholars, persons who are graduates of an institution not lower than the high grade technical school after completing a course of not less than three years, or who have qualifications similar to the graduates named above, and persons who have taught for two or more years in an institution not lower than the high grade technical school, in the Special Central Elections for the Citizens' Convention.

By "Special Central Elections" is meant the elections held in Peking as provided by the Election Law for the Li Fa Yuan and by that for the National Convention. The electors must besides possessing the special qualifications be Chinese male citizens at least thirty years of age who at the time of registration of electors are residing in Peking.

Explanation of Terms.

All the terms used above, some of which may seem vague and elastic, have been defined and explained by orders and regulations duly promulgated. For example the following:

A person holding the position of a high official is one who is holding or has held the rank of a "recommended" official as, e.g., a district magistrate. A person who has an education similar to that of a high grade technical school is one who has obtained at least the degree of "Chu Jen" in a proper examination.

A person who has rendered meritorious services to the State is one who has received orders or decorations stated to be on account of meritorious services.

A learned and eminent scholar is one who has profound ancient and modern or Chinese and foreign learning and who has printed and published works beneficial to the country or to society, or who though not having printed and published such works has suitable testimony to such effect.

On Thursday, November 4, Mr. Obata, the Japanese Chargé d'Affaires, visited Mr. Lu Cheng-hsiang and asked him for an explanation of the reply that had been given on November 1. It is reported that substantially the questions were (1) whether the Chinese Government intended to re-establish a monarchy in spite of the advice given, and (2) whether the Chinese Government was prepared to guarantee the protection of foreign interests in China on the event of disturbances breaking out. This request for further information was made by Japan on her own account and not as the representative of the Allied Powers.

The Japanese Chargé d'Affaires, and the Ministers of Great Britain, Russia and France on November 11 visited the Foreign Office by invitation when Mr. Lu made a statement. He reiterated the fact that the Chinese Government had already replied to the Powers that it had never had the intention of hastening the change in the form of government. At the present moment, he pointed out, the number of votes cast in the provinces amounted to more than half the total that could possibly be registered so that the change in the form of government had practically already been decided upon by a majority of the people of China. After consultation with the various Ministries and organs of state it had been ascertained that, after the decision of the people had been recorded, the steps that it would be necessary to take were many and varied, so that before the performance of the grand ceremony could be carried out full and complete preparations had to be made and a suitable time had to be selected. There was, therefore, necessity for some delay, he said, but judging from the tendency of popular opinion this delay would be distasteful to them. Furthermore, there were rebels in places beyond the jurisdiction of the Chinese Government who were taking advantage of the present moment to incite people with evil designs and cause disturbance and misunderstanding with regard to the motives actuating the presentation of advice by the Powers. In the event of any unexpected occurrences, however, the Chinese Government were fully able at all times to deal with them as they arose.

The Ministers of the Powers made no comment upon this statement, and at the time of writing no further extra-Chinese steps have been taken, except that Italy has associated herself with the advice given.

On November 10 Admiral Tseng Ju-cheng, Commissioner of Defence for Shanghai, was brutally assassinated in the International Settlement of Shanghai, when on his way to a Coronation reception at the Japanese Consulate. An immediate result of its committal was the adoption by the municipal authorities of Shanghai of measures to put an end to the facilities that had so long existed for criminals to seek immunity by posing as political martyrs.

The President on November 12 issued an important Mandate in denunciation of rebels. In this His Excellency pointed out that when the rebels had six provinces behind them and over 200,000 well equipped soldiers they were utterly overthrown in less than 50 days, although the Government at the time was in financial difficulties and the army was in need of reform. Now the "rebels" consisted of a few tens of thieves and outlaws, while the Government's finances had improved and the army had been reorganized. There was, therefore, no prospect of a successful rebellion. Perhaps this Mandate may be taken as an answer to the allegation that there is danger of disturbances following the change in the form of government that would endanger foreign life and property.

The voting in the meantime proceeded peacefully throughout the country, and was unanimously in favour of the restoration of monarchy. In Sinkiang some irregularities in procedure led to the quashing of the election. No disposition was shown on the part of the provincial authorities to acquiesce in any delay in making the change, and telegrams were received in Peking towards the middle of the month in which it was taken for granted that it would be carried through.

An interesting interview which the Special Correspondent of the "North-China Daily News" had with Baron Ishii, the Japanese Minister of Foreign Affairs, was published in that paper on November 15. The correspondent's telegram, which was dated Kioto, November 14, read as follows:

"I had an interview with Baron Ishii, the Minister for Foreign Affairs, this morning, and learned that the Chinese reply to the advice of the Allies is now under consideration by the Governments concerned. Japan does not regard the Chinese reply as altogether satisfactory, for it gives no indication of the duration of the postponement of the proposed change of Government. Japan's view is that no change should take place while there is evidence of opposition to it in China. Japan has been prompted to propose that the Powers should advise China partly on the general ground of her responsibility in present circumstances for the maintenance of peace in the Far East and partly for the special reason that her business interests are being seriously affected by the present suspension of trade in the Yangtze Valley and elsewhere. This is attributed directly to fear on the part of the Chinese that political trouble may arise in consequence of the projected change. Japan recognizes the artificial character of the movement and believes that the Chinese people will welcome a postponement."

OFFICIAL INTERFERENCE AND COMMERCIAL DEVELOPMENT

The theory is sometimes advanced that there would be greater industrial and commercial development in China if more direct encouragement were afforded by the officials. Though officials may undoubtedly assist in this direction, a study of the conditions in the most advanced countries leads to the belief that the best results are attained if the encouragement be passive rather than active. Business thrives best where it is least interfered with. It is, of course, true that vast concerns have been built up as a result of government assistance in the shape of subsidies, but successes quite as great have been achieved in countries where the subsidy system is not in vogue. Consequently it may be said that, though subsidies may help to encourage development, they are not essential.

The condition that is common to all the countries in which there has been marked industrial and commercial development is the abstention by the government from any action calculated to prevent the business-man from obtaining the full reward of his enterprise. The law in such countries defines clearly the obligations of any individual or company to the State, and the burden that will fall upon any enterprise can be exactly calculated before it is entered upon. In such circumstances ventures by individuals or joint-stock corporations can be embarked in with confidence, as it is known that success will not result in penalization by the government. No taxation other than that authorized by the known laws of the land can be imposed, and secure in this knowledge the best efforts are made to attain success.

In China, unfortunately, this passive encouragement has not been afforded in the past. "It is a fine morning; let us go out and kill something," is said to be the unconscious revelation by the Briton of the British character, but of Chinese officialdom the phrase should be, "It is morning; let us go out and tax something." In former days success has been penalized by official exactions. If a new industry was proposed officialdom did not consider to what extent it might add to the wealth of the country or open up new channels of employment, but to what extent it could be taxed. To some extent this point of view prevails to-day, and until it is abandoned there can be no marked industrial and commercial development in China. Chinese capital will continue to be invested in foreign joint-stock concerns in the treaty ports, and industries that might be promoted with great advantage to the country will be neglected.

There have been indications lately that the Government has recognised that the policy that has previously obtained has been detrimental to every one concerned. A tendency is being shown, as instanced by the activities of the Commercial and Industrial Commission, to devote increasing attention to the organization of the industries of the country with a view to the encouragement of production. To aid the work of this Commission the Government should issue definite instructions, to which the very widest possible publicity should be given, that no official is to collect any additional dues, charges or taxes of any kind whatever from those engaged in promoting industries. If this were done, and any official evading the instructions were most severely punished, the result would certainly be that a great impetus would be given to industry and commerce. Although not a rich country compared with the great industrial nations, China has sufficient capital available within her own borders to make a modest beginning, and with her inexhaustible supply of raw material and labour she would quickly gain her rightful place among the manufacturing nations. There is no need for the Government of China to give their people subsidies (except in certain specific industries); what they want is security for their capital and profits from the rapacious tax-collector.

THE STATUS QUO IN THE FAR EAST

A visit paid by three diplomatists to the Chinese Minister for Foreign Affairs on October 28, in order to proffer him some friendly advice is likely to assume historical importance. There were several things about the visit that were unusual. In the first instance the subject upon which advice was tendered was China's domestic policy, the question whether the Republic should be replaced by a constitutional monarchy. Then although the three diplomatists were the Minister for Great Britain, the Minister for Russia and the Japanese Chargé d'Affaires, the latter took precedence. Another fact that excited comment was the delivery of advice at a moment when its acceptance would be most embarrassing to China. Several of the provinces had already voted in favour of the restoration of monarchy when China was advised to postpone the change in the form of government.

There are some who hold that there is sinister significance in the fact that Japan took the lead in this matter. They fear that there has been a tacit admission by Great Britain, Russia, France and Italy—all of whom are now associated with the advice—of the political hegemony of Japan in the Far East. Japan, they think, has claimed as a reward for services of various kinds that she has rendered the allied Powers, the recognition of her paramount interests in China. This is the view taken by many of the Chinese, and they do not disguise their fears that the outcome will be anything but beneficial to China. The fate of Korea was sealed from the moment that Japan's paramount rights in the Peninsula were recognised. The independence of China has hitherto been preserved because the nations whose interests in China are commercial rather than political realised that those interests could be best secured by the maintenance of China's independence and equal opportunity for trade and commerce. Those considerations still exist, but these Powers are waging a war of so desperate a character that they cannot afford to allow any difference of opinion to arise between Japan and themselves. Therein lies Japan's opportunity and China's peril.

Another explanation, which puts the action of the Entente Powers in a more favourable light, finds acceptance in some quarters. It is suggested that these Powers, realizing that it was impossible to prevent Japan from meddling in China's domestic affairs, associated themselves with the intervention in order to restrain Japan if she went too far. Hostility to Japan could not help China in existing conditions while co-operation with Japan might prevent that Power from subjecting China to undue pressure. The explanation is plausible enough, but it finds little acceptance among the Chinese, who are obsessed by the fear that the impending fate of their country is already throwing its shadow before.

If the motives inspiring the association of the Entente Powers with Japan are difficult to understand, still more obscurity surrounds the motives of Japan herself. In an official communique the Japanese government disclaimed any desire to intervene in China's domestic affairs and explained that the advice to China was inspired by neighbourly friendliness. This declaration has not impressed the Chinese. They point out that timely advice informally offered might have been considered friendly. But the time that this advice was given was most untimely, and moreover, so much publicity was given to its presentation that it created a feeling of unrest among those elements of the Chinese population who are most prone to disorder. Until the advice was given the lawless elements in China were well in hand, and even those in the foreign settlements and adjacent foreign territory had become remarkably quiescent. The voting on the question of the form of government was being conducted in an orderly and peaceful manner, and there seemed no reason to apprehend disturbances. That was the situation when Japan tendered her advice, and gave the utmost publicity to her action. The effect, according to the *Nichi Nichi*, a well-informed Tokyo newspaper, was to encourage the rebel leaders who were lurking in Singapore, to proceed with their plans to overthrow the Government of China. It is remarkable that a Japanese newspaper should speak so frankly in regard to the effect of the advice, but there is no doubt that the rebels put their own interpretation upon Japan's action and from that interpretation gained renewed confidence.

The assassination of Admiral Tseng, the Chinese Commissioner of Defence at Shanghai, is considered in some quarters to be an indirect outcome of Japan's advice. Whether that be so or not, too much importance need not be attached to the outrage. Admiral Tseng has lived under threats of assassination for the past few years, and if the question of a change in the form of government had never arisen his fate would probably have been the same. His offence in the eyes of the assassins and those who sympathize with them was that he was a stern upholder of order. Those who regard Japan with distrust frankly express the belief that she would witness the growth of unrest in China with complacency, if military measures in China became necessary her hegemony would be firmly established, as no other country could protect foreign interests if they were threatened. Consequently disorder in China would give her an opportunity of further increasing her power and prestige.

Whatever opinions be held in regard to the motives animating Japan and the Entente Powers, it has to be recognised that the *status quo* in the Far East is in danger of alteration. At present China's independence is, in effect, preserved by an international guarantee to which all the great Powers have subscribed. While that guarantee exists not only is China given a sense of security, but every Power can feel that its interests in China cannot be sapped by unfair competition. This being so a tendency to exchange the international guarantee for the paramountcy of one Power must be regarded with apprehension. This is evidently the view taken by the American State Department. When the Secretary of State was invited to associate America with the advice to be offered he declined on the ground that it was undesirable even to appear to wish to interfere with China's domestic concerns. The assumption is perhaps fair that Mr. Lansing was animated not only by the reason given, but by the desire to have his hands free in view of probable developments. The watchful detachment of America is a source of satisfaction to the Chinese and to the great body of foreigners of all nationalities in China who realize that their interests would be gravely jeopardized if any material alteration in the *status quo* were brought about.

FUSHUN COLLIERIES EXTENSIONS

The Management of Fushun Collieries, which has had its hands tied owing to curtailment of expenses by the South Manchuria Railway Co., is trying to secure a more liberal appropriation for the next fiscal year in order to carry out some of its cherished plans, including the extension of open cast at Kuchengtzu, the completion of Wantawo Incline and the excavation of a new shaft between the East and West Chienchinchai Shafts. When these plans are brought into maturity, the necessity of constructing railway sidings 20 miles or so will have to be met. All these projects will cost about between Y2,000,000 and Y3,000,000.

Then the present output of sulphate of ammonia at the Water Gas Producer Factory is intended to be nearly trebled from the next fiscal year, that is to say, the daily output is expected to be raised to at least 30 tons. As previously stated, the founding of a factory for manufacture of sulphuric acid is also under contemplation. These extensions will require an outlay of about Y3,000,000. The aggregate capital expenditure for the next fiscal year is put at between Y7,000,000 and Y8,000,000.

Hitherto, sulphuric acid for use in the manufacture of sulphate of ammonia at the Water Gas Producer Factory is valued at Y120,000 for 3,000 tons of sulphuric acid consumed. This supply has heretofore been obtained from Japan, but, being desirous of manufacturing it at Fushun, the construction of a sulphuric acid factory has already been taken up, beginning with the laying of the foundation. The construction work will entail an outlay of altogether Y600,000, but a sum of Y200,000 is wanted for the immediate purposes.

Regarding the report that it is impossible to make dye-stuff from the coal tar obtained at the Water Gas Producer Factory, the question is not one of possibility, but one of commercial feasibility. The cost of production is dearer than in the use of tar obtained from coal. It would be simpler and more profitable to manufacture paraffin, benzine, etc., from the tar than dye-stuffs, and a plan is under way at the Collieries to subject this scheme to a practical test.

The estimated annual outputs of Fushun Collieries are about 2,200,000 tons without a material change from a normal year. Laohutai Pit, which suffered from a fire last winter, has been restored to good working order. At present, the coolies employed at the collieries and for other purposes roughly number 20,000, both the underground and the surface gangs combined. The subterranean gangs consist of 7,000. At one time many left the collieries to seek better employment in Russian territory. The matter caused some concern, but it has been found to have no appreciable effect upon the efficient working of the Collieries.

CHINESE AID FOR SINO-AMERICAN BANK

Eighty-four delegates from various Chambers of Commerce of China, were in session in Shanghai as this issue of the FAR EASTERN REVIEW went to press and by their deliberations have brought the matter of the proposed Sino-American Bank to be an accomplished fact, so far as the expected co-operation of the Chinese people is concerned. The following points regarding the bank were approved:—

That the Chinese subscribe to $5,000,000, or half of the bank's proposed capital of $10,000,000, the Chinese Chamber of Commerce of Shanghai agreeing to raise $2,000,000 in six months, leaving $3,000,000 as the share to be raised by the various provinces. The latter were divided into three classes, as to the amount it was expected could be raised from each, although these estimates, members of the Chamber say, are likely to be exceeded in several of the provinces. Provinces of the "A" class are to raise $200,000; provinces of the "B" class, $150,000; and provinces of the "C" class, $100,000. In return for this co-operation, the Chamber of Commerce decided that one half the directorate of the bank must be Chinese, and that the policy of the bank be to foster trade between the United States and China.

This banking scheme is an outgrowth of suggestions that were made when the Nanyang Industrial Exhibition was held in Nanking, but it was not brought to a focus until the recent visit of Chinese industrial delegates to the United States.

At one of the early sessions of the present conference, it was proposed that an endeavor be made to bring about much closer relations between the Chinese and American Chambers of Commerce, so that direct trade between the American manufacturer and the Chinese consumer could be facilitated.

In connection with this question of close relations, the conference voted that the United States authorities should be requested to recognise as prima facie evidence in all cases of Chinese merchants visiting the United States, photographs of identification stamped with an official seal which is to be requested from the Chinese government and registered, both in the United States Consulates in China and in all the ports of entry of the United States.

Duly stamped copies of the photographs of Chinese proposing to visit the United States will be sent in advance to the Immigration authorities; the Chinese Chamber of Commerce, the Chamber of Commerce of the United States; and the United States consular authorities, while copies will be carried by the travelling merchant. It is hoped by this means to avoid the frequent detensions of Chinese and the hardships suffered by them when visiting the United States, owing to the rigor of the Immigration Laws

Although co-operation in the bank plan was readily voted, the matter of a joint exposition of Chinese and American products met with another solution. It was decided that expositions of United States goods should be carried out with funds raised in the United States by the interested manufacturers and it was stated that expositions were to be located at Shanghai, Hankow, Canton and Tientsin.

As to the Chinese expositions it was decided to ask that these be financed by the Chinese Government and in case of funds being available, they will consist of displays of Chinese produce and manufactures which under the present plan will be established in San Francisco and New York first, Chicago and New Orleans to follow later.

In the matter of financial aid for the newly organized Trans-Pacific Steamship Company, it was finally decided that the Shanghai Chamber of Commerce should subscribe to $1,000,000 of its shares in order that the steamship company might have immediate funds in hand to go forward in its plan to put four steamers in operation at once. This makes the total pledged by the Shanghai Chamber $3,000,000 and while it was at first proposed that the whole of this sum should go for shares in the new Sino-American bank, it was later considered a better policy to divert $1,000,000 of it to the needs of the Steamship Company. No plan was made for the participation of the provinces in the Steamship Company, as in case of the bank, although it is expected that large subscriptions to the shares of this enterprise will be raised privately or through the indirect influence of the visiting delegates from the provincial Chambers.

Of the eighty-four delegates present at the conference, there were representatives from all but five provinces, Kweichow, Yunnan, Honan, Kwangsi and Kwangtung.

Although the absence of delegates from Kwangtung was remarked upon by several of the delegates, it was laid down to failure to make suitable steamship connections as both these projects, the Steamship Company and the bank, are expected to give great impetus to the advertisement of the Southern provinces as well as the Northern provinces. Although the other southern provinces were without delegates, Fukien was represented by three delegates who took an active part in the proceedings.

The sessions of the conference were presided over by Chang Chen-hsun. The conference closed December 1, after being in session one week, the closing ceremonies being marked by an elaborate banquet given by the Taoyin of Shanghai, Mr. Chu Tsing-tseng, who was president of the Shanghai Chamber before his recent nomination as Envoy for Foreign Affairs to succeed Mr. Yang Cheng.

PHILIPPINE SUGAR CENTRALS

The government central sugar board has announced that the report that an additional appropriation of P500,000 would be asked by the board was without foundation of fact. The truth of the matter is, it is stated, that there are two proposals now under consideration. The first of these calls for an amendment to the original act by increasing the total appropriation to P5,000,000. With this amount available the board feels that it will be in a position to guarantee the construction of at least three, and probably four centrals in different localities. The other proposition is to amend the act so as to provide such additional funds as may be necessary to meet the expense of erecting and providing equipment for the Isabela mill only. Although no specific amount is mentioned in the latter amendment, the board seems to be of the opinion that it should not be hampered when bids are again called for by a limitation which would prevent the acceptance of an otherwise advantageous offer, merely because the amount involved is slightly in excess of the P2,000,000 now made available for expenditure by the board.

Representatives of the bureau of audits have been conferring with the board upon the financial aspects of the situation, and it is understood that several of the most important of the proposed amendments to the organic act are designed to permit the board more latitude in dealing with matters of that nature.

PANAY AUTO LINE

The acting secretary of commerce and police has approved the reversion of P5,000 of the Panay automobile line operated by the government, to be used in meeting the cost of maintenance of that line. The legislature apropriated P10,000 for that purpose, but this sum has proved to be insufficient to meet its needs, and as its receipts over and above actual operating expenses have amounted to a trifle more than P7,000 thus far this year it has been decided to use P5,000 of that amount for maintenance.

UNITED STATES CAPITAL FOR CHINA

The formation of a company with a capital of fifty million dollars under the promotion of Mr. F. A. Vanderlip, president of the New York National City Bank, was announced on November 2. It appears that large investment of American money in China is one of the objects of the company. The directors of the company include prominent financiers.

SHANGHAI TRADE REPORT FOR 1914

[By F. S. Unwin, Commissioner, Chinese Maritime Customs]

The year under review shows a diminution in revenue of Hk. Tls. 2,414,000 and in the value of the trade of Hk. Tls. 35,000,000. At its commencement there were good prospects of brisk business, a general all-round improvement having been predicted in the closing days of 1913. After the Chinese New Year these expectations appeared likely to be realised; a period of confidence set in, and throughout the country a demand for foreign goods made itself felt. Money was easier—the Chinese beginning to bring out the silver they had hoarded—and hopes of a thriving export trade were widely entertained. In spite of the disturbed state of affairs in the provinces, due to the depredations of White Wolf, a substantial increase in the Customs revenue for the first three months of 1914, as compared with the same period in 1913, was registered, but was counterbalanced by a reduction in revenue during the second quarter. For more than 12 months White Wolf had overrun the fairest of the provinces of China, his incursions carrying him through Honan, Shensi, Anhwei, and Hupeh before he was finally run to earth in the beginning of August. In order to preserve law and order the Government had been forced throughout the period of his activity to keep large bodies of troops employed at strategic points.

Even before the suppression of this famous brigand had been effected, the war in Europe had broken out, leading to the complete paralysation of trade for a time. Business generally came to a standstill and the export trade ceased entirely. The banks were unable to carry out any exchange transactions with the exception of demand drafts for small amounts. The Stock Exchange was temporarily closed. Many contracts made on very advantageous terms to the exporter were allowed to lapse or were cancelled. Sailings to Europe were postponed, coast sailings even being affected by the crisis, and it was everywhere a case of marking time and awaiting developments.

Although China herself was not involved in the war, the situation in Shantung created by the investment of Tsingtau contributed towards intimidating merchants and thereby hampering trade. Close upon this came the news of the sinking of merchantmen in the Bay of Bengal by the German cruiser *Emden*. With the fall of Tsingtau and the destruction of the *Emden*, off the Cocos Islands on the 29th November, a feeling of greater security returned, and before the conclusion of the year under review a boom in exports set in, favoured by the exceptionally low exchange. Unfortunately, in the meantime many large ships had been taken away from their run—either lying in neutral ports or being chartered by their respective Governments for special work,—so that shipments were seriously retarded. The financing of trade with Europe was impossible; but if the inland markets had been able to absorb stock at anything like cost, Shanghai firms would at all events have had no cause to complain.

During the year Shanghai street traffic has developed considerably. The Shanghai electric tramcar service has more than sustained its popularity, the number of passengers carried during the year being far in excess of that of 1913. Building activity in 1914 may be described as remarkable and unparalleled in the history of the port. During the first three months of the year alone 2,394 houses were under construction. The number of buildings in process of construction in 1914 totalled approximately 10,000. This included mills, godowns, shops, offices, and Chinese and foreign residential premises.

It is interesting to note that Shanghai bids fair to become one of the principal centres of the cotton industry in the Far East. The Hwa Sing Cotton Company is building a large mill with adjacent godowns and storerooms, and three mills for this company are removing from Hongkong to Shanghai. The exceptional prosperity of the cotton trade has led the Shanghai Cotton Company to double its plant, and all foreign-controlled mills have made additions to their looms and spindles. Even the Japanese seem to give preference to Shanghai as against Osaka for manufactures intended for the Shanghai market, which, being in the midst of a cotton cultivating district, has a larger scope for its wares.

A new delimitation of the French Settlement was undertaken during the year and the French authorities were given full control of the roads that have been built beyond the old boundary. The year 1914 saw the scheme for filling in the Yangkingpang passed by the land-renters, the area thus gained to be converted into a fine boulevard. The estimated expenditure in connexion with the filling in of the Yangkingpang and Defence Creek, together with drainage, road construction, and contingencies, amounts to Tls. 211,403. This is not excessive considering that the proposed road will be of great service in relieving the congestion of traffic in the Maloo, as well as give a fresh impetus to building activity in the Settlement.

The number of fires throughout the Settlement was, as usual, considerable. Early in February the large cotton godown of Messrs. Mackenzie & Co. was destroyed by fire, the actual damage being estimated at Tls. 400,000, no less than 16,000 bales of cotton having been burnt. During the same month Messrs. Hall & Holtz's furniture factory, with adjoining bakery and store, was completely gutted, the losses incurred exceeding Tls. 100,000. Later on in the year a disastrous fire broke out in the Chinese city, involving the destruction of a theatre reputed to be the finest in Shanghai. On the 6th November a serious fire occurred at a Japanese cotton mill near Wuchow Road, by which the mill was totally destroyed, as also were several terraces of Chinese houses.

Rapid progress has been made towards the reorganisation of the Kiangsu-Chekiang Railway under the control of the directorate of the Shanghai-Nanking Railway. This line received no small damage at the hands of the rebels during the disturbances in 1913. General plans for the linking up of this railway with the Kiangsu line have already been formulated and submitted to Peking, where, preliminary sanction having been received, negotiations for the purchase of the necessary land are proceeding apace. Under the new administration a number of reforms have been mooted—among them the abolition of the dual authority by which part of the line was financed and managed by Kiangsu and the remainder by Chekiang—in favour of State ownership in the future.

Revenue

With the exception of transit, which registers a gain of Tls. 16,000 on the results of 1913, all other revenue headings show a decided reduction. Import duties alone suffered to close on a million taels, two-thirds of which can be accounted for by the losses under British and German flags, amounting to Hk.Tls. 640,000, *i.e.*, Hk.Tls. 380,000 and Hk. Tls. 260,000, or, roughly, 60 and 40 per cent. respectively. Tonnage dues show a decrease in sympathy with this of nearly Hk.Tls. 100,000. Coast trade and export duties also share in the general decline all round to the extent of over Hk.Tls. 470,000. The diminution in opium revenue, about 50 per cent., is not the result of the dislocation of the trade caused by the war, but of the gradual suppression of the drug.

Imports, Direct and Coastwise

The gross value of foreign imports for 1914 is, roughly, Hk. Tls. 241,000,000, or about Hk. Tls. 5,000,000 less than in 1913. In this decline opium accounted for Hk.Tls. 3,600,000, some 7,665 piculs less having been imported during 1914, the equivalent of a decrease of about 60 per cent. in weight. This was owing to the gradual reduction of the importation of opium arranged between the Chinese and Indian Governments. The importation of grey and white shirtings shows a reduction of 25 per cent., the heavy arrivals at the end of 1913 causing stocks at the beginning of 1914 to be considerably heavier than in previous years. *T*-cloths also declined to a little more than half of what was imported in the previous year. Japanese drills and grey shirtings have gone steadily ahead; while Japanese *T*-cloths, on the other hand, have declined by about 30 per cent. Printed cottons have done satisfactorily in the year under review, a gain of 37 per cent. being recorded. The import of Russian prints has increased nearly 200 per cent.

During the year 1914 fancy woven cottons have done well, with an increase of nearly 150 per cent. The stocks in this class of goods were less than usual, and, the demand being good, new arrivals did not remain long in hand, and the prices obtained were well above the average. The total value of cotton piece goods imported in 1914 amounted to Hk. Tls. 100,000,000, or 3½ per cent. less than in 1913.

To a certain extent the trade was affected by the action of some importers, who gave instructions to hold back shipments during the earlier months of the war, while towards the latter end of the year steamer accommodation was scarce. In coloured goods, anticipation of a shortage in aniline dyes in producing countries had the effect of stimulating imports.

One of the outstanding features of the trade in dyed cotton goods during 1914 was the great popularity attained by figured cotton poplins. Large orders were placed for these goods during the latter half of 1913, and in some quarters fears were expressed that the trade had been overdone. But while other lines of dyed goods arrived to a dull and dejected market, figured poplins of suitable designs went steadily into consumption, and reports from the interior markets are to the effect that these goods continue to grow in favour. Plain black venetians have also increased their reputation.

Early in February an attempt to inaugurate piece goods auctions in Hankow was strenuously opposed by Chinese dealers in Shanghai, who seem to consider that they have a prescriptive right to be the middlemen for the purchase of piece goods for the Yangtze Valley. Their opposition was so strong and effective that the Hankow auctions had to be abandoned and the business still remains in Shanghai. It is claimed that approximately one-half of the Manchester piece goods sold in Shanghai are sold by auction.

The spring demand for piece goods was below the average, owing to the unsatisfactory state of the money market in the interior and nervousness as regards piracy in Hupeh. As the year progressed the position gradually got worse. This was caused by heavy imports and decreased deliveries. In June deliveries improved and orders decreased for a time, but there was no great improvement in the situation, and when the European war commenced the market was hopeless; huge stocks had accumulated, and deliveries practically came to a standstill in September. The difficulty of finance also militated against any improvement in the foreign import and export trade. The cessation of trade in Hongkong gave Shanghai the chance of filling a few orders from the southern ports in September, but not sufficient to offset the cessation of trade in Shantung caused by the military operations at Tsingtau.

Velvets, velveteens, and velvet cords have declined by nearly 30 per cent. the falling off under this class being probably due to change of fashion. To this latter cause also may be attributed the drop in the trade in woollen piece goods during the last 10 years from a value of 2½ to 1 million taels, every item showing a heavy decline.

Metals show increases under iron angles, cobbles, and tinned plates, and decreases under iron sheets and plates and galvanized iron sheets, the latter item having declined 40 per cent. In the spring the metal market was fairly good, but the summer and autumn business was poor, and although prices improved considerably during the last quarter of the year, owing to low exchange and the war, very little business was done.

The trade in kerosene oil during the year 1914 was good, as will be seen by comparing the figures of 1913 and 1914. In the future imports of American oil into China are likely to increase even further, owing to the opening of the Panama Canal. Shanghai is largely used as a distributing centre, and therefore figures showing imports into Shanghai, even if taken over 12 months, are apt to be misleading.

The trade in artificial indigo and aniline dyes has suffered owing to the war in Europe, Germany, the principal producing country, having been cut off from the trade since August, 1914. A decrease of 40 per cent. is registered in the sugar trade. The prolonged drought experienced at the commencement of the year made transport of merchandise on the inland waterways difficult, and the depredations of White Wolf also had an unsettling effect tending to reduce sales. No Formosa or German beet sugar appeared on the market during the year.

There has been an advance of about 15 per cent. in the import of timber, accounted for by the phenomenal increase in building activity in Shanghai. Machinery has also shown considerable increase during 1914, a gain of nearly 150 per cent. on the results of the previous year being recorded.

The total value of re-exports to foreign ports in 1914 was Hk.Tls. 8,901,000—a decrease of 20 per cent. on the results of 1913. Opium decreased by 70 per cent., 902 piculs only having been re-exported in 1914, as against 2,880 piculs in 1913. The re-export of English jeans decreased by nearly 70 per cent. when compared with the figures of the preceding year; while, on the other hand, woollen and cotton goods, 95,000 pieces, showed a gain of over 400 per cent. on the figures of 1913. Other commodities, showing insignificant increases or decreases, call for no special remarks.

The total value of re-exports to Chinese ports shows only a slight falling off. Grey shirtings and sheetings, as well as Indian cotton yarn, have receded considerably. Wheat flour has declined by nearly 60 per cent., 92,000 piculs having been re-exported in 1914, as against 210,000 piculs in the preceding year. Seaweed and soda ash show gains of 17 and 32 per cent. respectively upon the results of 1913. There was a diminution of nearly 25 per cent. in the value of aniline dyes re-exported to Chinese ports in 1914.

Chinese Goods Exports, Abroad and Coastwise

The total value of Chinese goods exported abroad and coastwise amounted to nearly Hk. Tls. 233,000,000, a decrease of, roughly, Hk. Tls. 30,000,000 when compared with the figures of 1913. About one-half of the total is accounted for by re-exports abroad, and of the remainder over Hk. Tls. 37,000,000 represent the value of Chinese goods re-exported to Chinese ports, and a like amount that of those exported to foreign countries and Hongkong; while the balance, Hk. Tls. 48,000,000, may be taken as the value of Chinese produce of local origin exported to Chinese ports.

The exports of raw cotton have declined by 15 per cent. In 1914, 780,000 piculs passed the Testing House, compared with 850,000 piculs of the year before, a falling off of about 10 per cent. During the year ended 31st July, 1914, out of 944,000 piculs of raw cotton that came under the cognizance of the Testing House, the varying degrees of moisture proved to be as follows: In 41 per cent., or 387,000 piculs, it was inside the 12 per cent., standard; in 57 per cent., 538,000 piculs, it was between 12 and 15 per cent.; in 2 per cent. or 19,000 piculs, it was over 15 per cent. and caused the rejection of the cotton. This shows a slight improvement over the previous year; but the deliberate watering of cotton still continues, to the detriment of the trade.

In May the Shanghai Cotton Anti-Adulteration Association resolved to reduce the moisture limit from 12 to 15 to 11 to 14 per cent., to take effect from the 1st September. The Chinese cotton dealers, not realising the eventual benefit to the trade, but only anxious for immediate profits, opposed the scheme, and as the reduction, so far as it concerned the export trade, could not be enforced without the sanction of the Chinese Government, the whole scheme had to be postponed until such sanction could be obtained. It might be mentioned here that the same Association has started an experimental cotton farm with a view to improving local cultivation methods.

The local cotton mills have exported nearly 700,000 piculs of cotton yarn, an improvement of 50 per cent. over the previous year's exports. Their export of grey piece goods at half a million is short of the previous year's figures by 100,000 pieces. The export of beans and peas has fallen off considerably, likewise hemp jute. Buffalo and cow hides also show diminution.

Shanghai mill flour again records an increase of 25 per cent., about 400,000 piculs having been exported during 1914. The local flour mills are said to have an output of 20 million bags yearly, of which amount 7 million bags are consumed locally and the balance is exported. The area in Kiangsu devoted to the cultivation of wheat is said to have increased, owing to the suppression of poppy growing.

Silk, being an article of luxury, was the first of China's products to feel the effect of the war. The trade with the continent of Europe ceased abruptly on the outbreak of hostilities. It was hoped, however, that the local filatures could be kept going by manufacturing for the American market. Prices started well; but when the European market was closed, prices on the American market dropped 20 to 25 per cent., thus making it unprofitable to manufacture raw silk at the current price of cocoons. Lyons reappearing on the market in December caused prices to rise slightly. With the decrease in price and the lowness of exchange, purchasers found themselves in a most favourable position.

The filatures, though temporarily assisted by an advance of funds from the Government, were still at a disadvantage. The truth is that the price paid nowadays for cocoons is too high, and it is to be hoped that this crisis in the silk trade may eventually have a beneficial effect in discouraging speculation in cocoons. The cocoons imported in 1914 were mortgaged to about 90 per cent. of their purchase price. When the American market dropped 20 per cent., not only the margin on the cocoons had run off, but also the value of the cocoons had become some 10 per cent. less than the amount advanced against them. Another difficulty that the trade in silk has to contend with is that there is not sufficient capital behind the steam filature companies. The figures for the year nevertheless show that the export of steam filatures only declined some 10 per cent. in the aggregate: the trade with the United States doubled, whilst that with the continent of Europe was reduced by one-half. Large decreases are, however, shown in native, re-reeled, and wild raw silk.

Black tea shows an increased export of over 40 per cent., but brick tea has declined by 21 per cent. The season for teas for European, Asiatic, and African markets (which generally are classed as Country Green) opened with high tael prices, and for a time the market was brisk; but upon the outbreak of war the demand was at once killed, and heavy losses were sustained by all holders. At the end of the year a limited business was being done on the whole at a decidedly lower range of values. The season will be remembered by all dealers in tea as a very bad one.

Inland Transit Dues Increase

The year's return shows an increase of Hk. Tls. 27,000 on the collection of dues under this heading in 1913. This is due mainly to the following reasons: transit passes have recently been taken out at Shanghai for cargo carried by river steamers to ports of call on the Yangtze; there was a sudden boom in transit passes issued for Shantung, owing to the closing of Kiaochow; and thirdly and lastly, a general increase took place in the demand for transit passes covering kerosene oil. During the year 35,130 passes in all were applied for, as against 26,597 in 1913, representing a gain of 8,533. Outward transit shows a decrease of Hk. Tls. 11,275, of which the reduction in cocoons alone accounts for Hk. Tls. 4,800.

The total tonnage of vessels entered and cleared during 1914 shows a decrease of about half a million tons when compared with the figures of the preceding year. For the first seven months of the year, up to the outbreak of hostilities, the tonnage of vessels entered and cleared showed an increase all round on the previous year. About the middle of August German vessels ceased to ply, and gradually, from one cause or another, the tonnage of other flags for foreign ports had sagged down to about one-half of their former level by the end of the year. The Canadian Pacific Railway Company's steamers and some of the P. & O. vessels were taken up at once by the British Government without being replaced. Other vessels were on the homeward berth and cargo was ready for shipment, but the difficulty of financing commercial transactions prevented cargo from leaving for European ports in any appreciable quantity during the first three months of the war.

In the autumn, however, the cargo for America exceeded the tonnage available, with the result that steamer owners gave the higher freight-paying commodities the preference. Later in the year, when finance was possible, exports abroad improved all round, but were still curtailed by lack of freight room available. During August the New York route *via* Suez Canal was practically closed, owing to the higher war risk premiums, and all cargo, which otherwise would have found its way to the United States of America by way of the Suez Canal, was sent across the Pacific, owing to the fact that it could be carried in neutral bottoms with little or no war risk. The London Conference found itself obliged to increase its rates by 20 per cent. over those of the tariff of 1914, and the New York *via* Suez Conference raised its charges 33⅓ per cent. higher than customary, besides insisting on the prepayment of all freights.

In October the Suez Canal Conference inaugurated a new service *via* Panama, the first boat to take this route being the s.s. *Indradeo*, the voyage occupying about 52 days. With the destruction of the *Emden*, shipment *via* the Suez became more regular and confidence was restored, notwithstanding the fact that Turkey joined the belligerent Powers in November and thereby threatened the security of the Canal route.

During the last five months of the year the tonnage on the Yangtze was fairly normal, showing an increase over 1913 in August, September, and October, owing to the fact that in 1913 Chinese shipping was suspended for a while on account of the rebellion. The coasting tonnage, though suffering for a short period at the beginning of the war, finished up with an increase for the whole five months after its outbreak. At the close of the year there was hardly sufficient freight room for the cargo offering from the river or coast ports.

In tonnage Great Britain again heads the list with a total of 7,848,371 tons for steamers entered and cleared in 1914, showing an increase of over 100,000 tons when compared with the previous year's figures. Japan is next with 4,704,500 tons, a decrease, however, of 300,000 tons upon the results of 1913. German shipping, owing to the war, has receded over half a million tons. Increases in tonnage of American, Danish, Dutch, and Chinese vessels are recorded, the year on the whole being an excellent one for neutral shipping. In spite of everything, the grand total of shipping entered and cleared has not suffered to the extent that might have been expected, the falling off being only 630,000 tons.

According to the returns of traffic compiled by the Shanghai-Nanking Railway the year has been a good one in point of receipts and number of passengers carried, the latter being given as 5,400,000 and the former as $2,441,000. During each of the months of January, March, and April over half a million passengers were conveyed to and from various places on the line. The Soochow and Hangchow launch passenger traffic also shows important increases when compared with the results of 1913, an excess of over 221,000 passengers in all, or 25 per cent., being recorded, which speaks well for the continued popularity of boat travel. As has been stated elsewhere, the terminal stations at Shanghai of both the Kiangsu and Shanghai-Nanking Railways are to be connected in the near future, and, with the extension of the tram system to meet the new exigencies, a continued increase in passenger returns is expected.

Treasure Imports Decrease

The total value of treasure imported during the year was only *Hk.Tls.* 33,200,000, or about one half of the total amount reported in the previous year. This reduction is almost entirely accounted for by the big drop in arrivals from foreign countries, more especially Europe, which shows a falling off of over *Hk.Tls.* 17,000,000 when compared with the returns of 1914. Among other coins contributing to the general diminution were Japanese gold yen, which fell off considerably, only *Hk.Tls.* 800,000 being imported during the year. Silver bars and sycee also declined appreciably among imports from abroad, the total amount reported being less than one-tenth of what arrived in 1913. The only item of imported treasure which actually showed an increase was gold coin from the Straits Settlements. Arrivals from native ports of China totalled *Hk.Tls.* 28,500,000, registering approximately a gain of over 10 per cent. on the results of the preceding year.

The total value of treasure exported during 1914 was about *Hk.Tls.* 43,560,000, representing a balance in favour of exports over imports of, roughly, *Hk.Tls.* 10,000,000. Treasure exported to foreign countries shows a marked increase, the total amount reported being over *Hk.Tls.* 26,500.000, or nearly twice what was exported in 1913. In this America and Japan have participated to a considerable extent, the former contributing, in the return for gold bars, over *Hk.Tls.* 4,000,000 and the latter nearly *Hk.Tls.* 5,500,000. Silver bars shipped to Chinese ports dwindled down to one-quarter of the amount sent forward in 1913. Silver coins, however, have shown an upward tendency, about *Hk.Tls.* 2,000,000 being shipped in excess of the figures reported in 1913. There was a great demand from Hongkong for this article, an excess of *Hk.Tls.* 4,500,000 over the figures for 1913 being reported.

Importations of Opium

The total number of chests of certificated opium which arrived during 1914 was 472 (295 Malwa and 177 Bengal), whereas in 1913 1,055 chests, divided into 888 Malwa and 167 Bengal, came to Shanghai. Only small quantities arrived at a time, and during the summer months (June to September) none came forward. During the year the provinces of Hupeh, Honan, Chekiang, and Fukien were added to the number of those from which opium is excluded, leaving only eight provinces, viz., Kiangsu, Kiangsi, Shensi Kansu, Kweichow, Yunnan, Kwangtung, and, Sinkiang into which the drug may still be imported. The re-exports to Hongkong amounted in all to 829½ chests, compared with 2,759$\frac{8}{2}$ in 1913, the reason for this reduction being alleged to be the fact that more favourable prices for the drug ruled in Shanghai during the year 1914. Only 46 chests were re-exported to treaty ports; of this amount, Kiaochow took four, and the remaining 42 were absorbed by Swatow—a decrease of 181 chests on the returns of the preceding year. The total quantity released from bond for local consumption amounted to 3,881$\frac{25}{2}$ chests, as against 8,964$\frac{28}{2}$ chests for the preceding year, or a diminution of 5,083$\frac{3}{2}$ chests. During the last five years opium held in stock at Shanghai at the end of each year was as follows:—

	Malwa.	Patna.	Benares.	Total.
	Chests.	*Chests.*	*Chests.*	*Chests.*
1910	2,904$\frac{23}{2}$	4,473	1,161	8,538$\frac{23}{2}$
1911	6,389$\frac{57}{2}$	7,634	2,228	16,251$\frac{56}{2}$
1912	12,902$\frac{85}{2}$	5,819	1,838	20,559$\frac{85}{2}$
1913	5,674$\frac{49}{2}$	2,631	1,459	9,664$\frac{49}{2}$
1914	3,041$\frac{23}{2}$	1,384	955	5,380$\frac{23}{2}$

At the end of the year 644⅔ chests of ticketed opium, which paid duty and likin at the old rate of Tls. 30 and Tls.80 respectively, remained in bond. The following note has been supplied by Messrs. E.D. Sassoon & Co. on the opium trade in Shanghai during 1914. "During the first two months of the year there was a brisk demand and a large business was done at advancing rates, the highest figures touched being Tls. 6,830 per chest for Bengal and Tls. 6,675 to Tls. 6,800 for Malwa. In March, however, a reaction set in and deliveries fell off considerably, the market remaining quiet throughout the summer and prices receding by about Tls. 1,500. During the latter part of the year, the Chinese dealers having disposed of a large portion of their heavy holdings, and with improved deliveries, a better feeling prevailed, prices recovering their former level. Quotations on the 31st December were: Bengal, Tls. 6,830; Malwa, Tls. 6,675 to Tls. 6,925."

Fluctuation of Silver

One of the outstanding features of 1914 has been the enormous fluctuation in the price of silver. The highest and lowest quotations were 27¾*d.* and 22⅛*d.* respectively, the total amount of fluctuation being 5⅝*d.* A comparison of the fluctuations of silver during the last five years may be of interest here:—

	Highest Quotation	Lowest Quotation	Average Price
	Pence	*Pence*	*Pence*
1910	26¼	23$\frac{3}{16}$	24$\frac{11}{16}$
1911	26⅛	23$\frac{11}{16}$	24$\frac{19}{32}$
1912	29$\frac{11}{16}$	25⅛	28$\frac{1}{32}$
1913	29⅜	25$\frac{15}{16}$	27$\frac{9}{16}$
1914	27¾	22⅛	26$\frac{5}{16}$

On the 25th May the Hart Memorial, a handsome bronze statue executed by Pegram, was unveiled by Mr. Raaschou, Consul General for Denmark and Senior Consul. Guards of honour were sent by the men-of-war in harbour.—In spite of the slackness of trade following upon the war, local industries seem to have flourished.

There has been an enormous increase in the demand for electric current for light and power. The Municipal Electricity Works supplied over 40,000,000 units in 1914, compared with 21,000,000 units in the previous year. The lavish display of shop signs lighted by electricity must have struck even the most unobservant. In no less than 1,500 Chinese houses electric radiators have been installed, and there seems to be an increasing demand for them. The use of small motors has been developed enormously, and there is hardly a rice mill in Shanghai now which does not possess one.

In the rebuilding of the various godowns destroyed by fire the latest type of automatic sprinkler has been installed, and it is hoped that this will largely minimise future risks.

GRAPHITE IN HONAN

A notable discovery of graphite has been reported from the Hengchoufu district of Honan province, according to a Shanghai resident who has recently returned from an inspection of the property which is part of an estate owned by his family. The region is rather difficult of access but the high quality of ore and the size of the deposit it is believed, will make its working commercially practicable.

The owner, who was educated in one of the Tientsin colleges, had some small knowledge of minerals and knew that coal measures existed some 25 li from his property. As the latter, however, was in a gneiss-porphyry region, he refused to credit the report of persons living on the estate that coal had been found in a vein nine feet thick. He called for samples of the coal and asked whether it would burn. The reply, before the samples came, was that this coal was "unripe" and therefore had not yet reached the stage of ability to burn.

The samples turned out to be not coal but graphite of excellent quality in that mica and pyrites were found to be totally lacking. The samples ran about 69 per cent pure amorphous graphite and the owner was induced to visit the deposit. He found that it was as reported, nine feet thick, a width which persisted over the 200 feet of ground on which he was able to trace it.

A shaft has been put down on the deposit which dips at an angle of 45 degrees and the quality and size of the deposit are maintained at depth, a sample from the whole face of the excavation runs 69 per cent of carbon. Owing to the absence of mica and pyrites, it is believed that the deposit can be worked by a fine grinding or all sliming process. Preliminary dressing experiments carried out on the ore extracted from the shaft show that it can be dressed to an average of 80 percent carbon which would permit shipments to be made even at the present low price of amorphous graphite. The only impurities are lime and sand with some manganese.

Other small veins were found in the district, but this is the only discovery of graphite in the workable quantity so far reported from the region. The coal measures 25 li distant are of anthracite and are reported to have about the same Northwest and Southeast strike as the graphite veins. The latter, however, occur in gneiss and porphyry while the coal is in the ordinary sand and limestone. The district is now being prospected for other minerals of economic importance. The Chinese idea of graphite as unripe coal is interesting as being exactly the opposite of that of the geologist who considers graphite as the highest member of the series that includes peat, bituminous coal, anthracite and graphite, so that in the modern view, graphite is really the ripest of all coals.

PLUMBAGO IN CEYLON

The Plumbago trade of Ceylon is undergoing a boom at present, and there is a steady rise in prices. The weekly statement issued by the Chamber of Commerce shows the exports from the island to the United Kingdom, between January 1st and October 4th last year as 36,004 cwts., but during the corresponding periods of this year the exports were 84,291 cwts.; whereas last year the export to Russia was only 79 cwt. this year she has already imported 27,935 cwts. The American demand also shows an increase of 23,614 tons. Almost all the firms which closed down shortly after the outbreak of war have been reopened, owing to the recent demand and prevailing high prices ruling. The prices on October 18 were just about double what they were in January of this year.

PANAMA-PACIFIC PRESS CONGRESS

The Press Congress of the World, an international organization, to meet triennially at the world's capitals, and to embrace workers in every department of journalism in all countries, was formed at the International Press Congress which met July 5th to 10th, 1915, at the Panama-Pacific International Exposition, in San Francisco. A brief constitution was adopted and officers were selected, two vice-presidents from each nation, an executive committee, a secretary-treasurer and a president. The office of the president was made the permanent headquarters of the Congress. The invitation of the Government of New South Wales to hold the first meeting of the Press Congress of the World in Sydney, Australia, in March-April, 1918, as presented by Mr. Niel Nielsen, Commissioner from New South Wales, was accepted.

The Congress, opened by an address by William Jennings Bryan, was large in number, important in personnel and program. The Honorary President was Virgilio Rodriguez Beteta, of Guatemala, Editor Diario de Centro America. The enrollment was 957 delegates, accompanied by 1,230 visitors, a total of 2,187 persons in attendance. This enrollment represented 29 nations and 46 states of the United States. Of the delegates 697, or three-fourths, were from outside California and 123 from outside continental United States. They included representatives of Australia, Austria-Hungary, Argentine, Cuba, China, Canada, Colombia, Denmark, France, Greece, Germany, Guatemala, England, Portugal, Ireland, Switzerland, Honduras, Italy, Java, India, Japan, Mexico, New Zealand, Spain, Sweden, Alaska, Hawaii and the Philippine Islands. The official proceedings will appear in the Book of the Congress to be published by a committee of which Jason Rogers, publisher of the New York Globe, is Chairman.

The constitution provides that the organization shall be known as the Press Congress of the World. Its object is to advance by conferences, discussions and united effort the cause of journalism in every honorable way. The sessions of the congress are to be open to the consideration of all questions directly affecting the press, but discussions of religion, politics and government policies will not be permitted. Workers in every department of journalism in every country who are engaged in promoting the highest standards and the largest welfare of the press are eligible to membership. The officers shall be an honorary president, a president, two vice-presidents, secretary-treasurer, an executive committee, consisting of the president, secretary-treasurer and five additional members chosen from the vice-presidents. These officers, with the exception of the honorary president, to be chosen by the executive committee, shall be elected at each session of the congress. The vacancies shall be filled by the Executive Committee upon recommendation of the countries affected. The time and place of meeting shall be determined by the Executive Committee. The constitution may be amended at any meeting under provisions to be established by Executive Committee.

The officers elected are:

President:	Walter Williams, Dean of the School of Journalism, of the University of Missouri, Columbia, Missouri, U. S. A.
Secretary-Treasurer	A. R. Ford, Secretary, Dominion Press Gallery, Ottawa, Canada.
Vice Presidents England.	Aaron Watson, Times, London.
	A. G. Gardiner, News and Leader, London.
Australia	J. W. Niesigh, Australian Journalist's Association, Sydney.
	L. C. McKinnon, Argus, Melbourne.
Japan	K. Sugimura, Asahi, Tokyo.
	I. Tokutomi, Tokyo.
Germany	F. Hartman, Hanover Zeitung, Berlin.
	H. F. Urban, Fremdenblatt, Hamburg.
China	Chen Chi, Peking Daily News, Peking.
	Yang Siu On, Peking Jih Pao, China.
India	S. Banerjee, Bengalee, Calcutta.
	Joseph Misrow, Hindu Press Association, Calcutta.
New Zealand	Robert Bell, Guardian, Ashburton.
	Mark Cohen, Evening Star, Dunedin.
Argentine	A. Davilla, La Prensa, Buenos Aires.
	Ernesto Nelson, La Nacion, Buenos Aires.
Honduras	Trolam Turcios, Tegucigalpa.
Salvador	Roman Mayorga Rivas, San Salvador.
Guatemala	Virgilio Rodriguez Beteta, Diario de Centro America, Guatemala.
Costa Rica	Luis Cruz Meza, San Jose.
Canada	John A. Cooper, Courier, Toronto.
	S. D. Scott, News-Advertiser, Vancouver, B. C.
Ireland	J. F. Charlessen, Ulster District of Journalists, Belfast.
Switzerland	H. Schoop, Swiss Press Association, Alten.
Portugal	Alfredo de Mesquita, Diario de Noticias, Lisbon.
	Manuel Roldan, Portuguese Press Association, Lisbon.
Russia	Serge Suremiatmkoff, Novoe Vremya, Petrograd.
Austria-Hungary	Dr. Acel Stahemberg, Hungarian Daily, New York City.
Cuba	J. A. Buchanan, Cuban Pavilion.
	J. L. Govin, El Mundo, Havana, Cuba.
Philippines	Martin Ocampo, La Vanguardia, Manila.
Italy	Dr. M. Borsa, 2 Secolo, Milan.
Denmark	Kristian Dahl, President, General Press Council. Havnegade 11, Copenhagen, K. Denmark. (Associate Editor of the "Politiken").
	J. Borgbjerg, Editor "Social-Demokraten" Copenhagen, Denmark.
Executive Committee.	Virgillo Rodriguez Beteta, Guatemala City.
	J. W. Niesigh, Sydney.
	Robert Bell, Guardian, Ashburton
	K. Sugimura, Asahi, Tokyo.
	H. Schoop, Alten, Switzerland.

The International Press Congress which resulted in the formation of the Press Congress of the World was one of a series of more than 850 congresses, conferences and conventions, during the Panama-Pacific International Exposition, held under the direction of the Bureau of Conventions and Societies of which Mr. James A. Barr is Director.

All Expositions, in their work of arranging for Congresses, have had a central theme. The central thought of the Chicago Exposition in its Congresses was given expression by the World Parliament of Religions. The central thought of the St. Louis Exposition in its Congresses was learning, as exemplified by the World's Congress of Arts and Science. The ten years since the St. Louis Exposition have been years of social, educational, economic and industrial unrest. Communities, states, nations, the world as a whole, have been groping for a solution of problems along all such lines. This is shown clearly by the multiplication of organizations, each seeking to solve some special problem from the local, state, national or world standpoint. In the sense of meeting the needs ofthe world,ofgiving the greatest possible help to states, national and international organizations, the central thought of the many congresses, conferences and conventions in and near San Francisco in 1915 is service, social, educational and industrial service.

As one result of the congress program was the International Press Congress. As the outcome of the International Press Congress is the Press Congress of the World, the purpose of which is the service of the highest interests of journalism and public service through the co-operation of pressmen everywhere, a contribution of large, permanent value to the world.

TRADE OPENINGS IN CHINA

Gold is found in many parts of the province of Szechuan, China, but not always in paying quantities. According to a recent report from Chungking, the most important mine in Szechuan that has thus far been opened is located at a very mountainous place called Maha, which lies in the south-western corner of this province about fifty miles north-west of Ningyuanfu. The Government is very anxious to develop the Maha mine to the fullest possible extent, and is now undertaking a thorough reorganization. Two Chinese engineers, who studied mining engineering in Belgium, are employing a corps of trained assistants and about 1,200 miners in the mining work at Maha. Both the Government at Pekin and the provincial authorities are giving them every encouragement, and there is reason to believe that this project will finally succeed. New mining machinery is needed to carry on this work to the best advantage. This opportunity is exceptional, inasmuch as the installation of a plant at Maha would doubtless result in further developments, since not only gold is found in the western part of this province, but antimony, iron, lead, silver, and copper also occur in considerable quantities, and will be mined eventually by up-to-date methods.

According to a recent official report, the district of Tzeliuching, which lies in the south-central part of Szechuan, some fifty miles north of Suifu, is the most important industrial centre in West China. This is true not only as regards its present state of development, but also as regards its potentialities and possibilities. Tzeliuching at no distant date will place larger orders for foreign machinery than any other city in this part of China. Machines for drilling new wells, for pumping up the brine, and for evaporating the salt are of first importance. Simple hoisting engines to supplant the water-buffaloes should enjoy a large sale. Gas-stoves and burners and engines using gas for fuel could also be introduced. As the salt-wells are operated night and day, there is an excellent opportunity for the sale of electric-lighting plants. Telephone-apparatus is also in demand, and mine pumps and machinery are needed in the coal-fields.

Writing on the resources of the Kaihsien district, the American Consul at Chungking, Szechuan province, says that while there is not much chance of introducing textile-machinery at the present time, if factories are started and the industry develops to any extent, there ought to be a market for cheap looms of simple construction. Mining machinery might even now be sold to advantage.

He also points out that, as the district about Chengtu develops, there will be an increasing demand for foreign machinery. Mining machinery is needed in the development of the region west of Kwanhsien, where lead, coal, silver, and copper deposits are said to be extensive. There is also a demand for machinery for the scientific refining of salt and sugar, and for the manufacture of paper, shoes, soap, candles, and many other articles. Modern sawmill machinery will eventually be introduced. Machinery for silk and cotton weaving could be used to advantage; much of the Thibetan wool that comes from Tachienlu to Chengtu could be made into fabrics at the latter city, where labor is cheap and water-power available.—*Journal of the Royal Society of Arts.*

TRADE CONDITIONS IN CHINA

[By V. Gonzales, Foreign Trade Adviser of the National Association of Manufacturers of the United States]

The peculiarities regarding China and the Chinese people, so far away and, after all, so little known to the outside world, make it extremely difficult to describe, in a short commercial review, what there is, and what there might be, for us in trade possibilities. Many a traveler, especially if he has been successful in his business missions, will tell wonderful stories of never realized opportunities, and many a book will describe, in something like fairy tales, Chinese wealth and poverty and romances of another race which seem so strange to us. What is here written, therefore, may appear very prosaic to the readers or hearers of such marvelous stories.

All of China is not yet open to direct commercial dealings with the outside world. Foreign commerce is restricted to 47 ports and 23 inland cities, and at these ports and cities it is the rule for resident foreign firms to employ a Chinese middleman, "known as a comprador," to pass upon all business contracts between the foreign and native houses. (The functions of the comprador will be described more fully further on in this article.)

China's Foreign Trade Relatively Small

The foreign trade of China appears somewhat duplicated by including Hongkong, which is a place for distribution and transshipment of imports and exports. Excluding Hongkong, the total amount of imports aggregated 570 million Haikwan taels, or about 395 million dollars American gold, in 1913. Exports were about 400 million taels, or about 280 million dollars. Considering that the population of China is very roughly estimated to be more than 400 millions, its imports are relatively exceedingly small—barely 5 per cent. of what it should be: taking the figures of our own trade as a basis. It represents less than 90 cents per head of population. Comparing this with other markets the smallness appears more evident. Latin-America, which is the most promising market for us, imports in all 1,200 million dollars; with a population nearing 75 millions, or about $16 per head of population. Canada imports about $90 per head of population; Australia $80 and New Zealand $100. The ninety cents per capita imported into China seems exceedingly small, but it must be borne in mind that China is barely in its infancy, so far as foreign trade is concerned, and that 400 millions of people, when brought to a reasonably consuming capacity by being productive themselves, will need to import a very large quantity of goods. If it consumed only one-half of what Latin-America consumes, or $8 per head, China would need more than 3 billion dollars of foreign merchandise; a share of which must be bought from us.

How long it will take China to arrive at this stage of commercial life no one knows, but the time is approaching rapidly. The influence of Japan, after the new treaty is put into effect, will probably awaken China quicker than the antagonistic European settlements so far apart and so different in many aspects of commercial and social conditions one from the other.

Of course, the low figures of China's present foreign trade are due principally to the financial inability of its people to purchase much outside of their own meagre production. The petty wages of the Chinese laborer are proverbial, and while in places open to foreign activities the pay is not so very meagre, in the largest portion of the country the equivalent of five cents American gold per day is none too low to accept as the average. Earning but five cents per day simply means that no foreign goods at all can be consumed.

China's Prospects of Development

The moment that the products of China gain a higher market value, the price of labor will advance, and with it the possibility of consuming more. It is a wheel which once started will not stop. Japan will likely have the first hand in this movement, and certainly will take advantage of it. The unjust pressure to which Japan has put China, in compelling acceptance of its terms of what outsiders consider a commercial and financial protectorate, may have had as its ultimate motive an expansion of Japanese industrial activities. But Japan cannot cover it all and there will be plenty of room for us also. However selfish it may appear, from a platonic point of view, to look coldly at a seemingly political imposition of a stronger country on another, we cannot help recognizing, when looked at from a practical standpoint, that Japan's move will be beneficial to our trade and to the world at large.

We Americans could not develop China commercially, financially or politically. Europe could not do it either and China has shown herself to be nearly helpless. Radical, and even antagonistic, differences of race, habits and tendencies, could never have been overcome; so that the new era to be started in China, under the influence of practically its own race, may be the best thing for all.

We must follow developments closely and be alert to opportunities which will present themselves. For this a thorough study of China and its resources is necessary. Japan will probably welcome our co-operation and not resent our desire to expand our trade, as long as we confine our activities to commercial lines.

We cannot undertake, in this short summary, to go very deeply into the study of Chinese problems, so we shall touch only the principal points of actual interests at this time.

Of the small Chinese foreign commerce our share is also very meagre. We sold scarcely 37 million dollars out of a total of 395 millions imported in 1913, and we bought just three millions more. Years ago our share and the volume of our business were larger, but we have so neglected the trade that we have been supplanted by the merchants of other countries, who have proved themselves to be, perhaps, more alert than we were.

The foreign purchasing power of China keeps pace, of course, with its exports, and with the contributions received from the Chinese who are living and saving in other countries. The foreign financial tribute is relatively small because foreign investments are not very important.

Exports are $280,000,000

The amount of exports, as mentioned before, aggregated about $280,000,000 American gold (403,305,500 Haikwan taels) distributed as follows:

Silk of all kinds	$73,000,000
Beans (soya) and cake	33,000,000
Tea	23,000,000
Skins and hides	16,000,000
Seeds and cake	13,000,000
Cotton	11,000,000
Oil (vegetable)	9,000,000
Tin	7,500,000
Wheat and other cereals	7,000,000
Coal (1,500,000 tons)	4,500,000
Wool	4,500,000
Eggs (363 millions) and albumen	4,000,000
Animals	4,000,000
Nuts	3,500,000
Straw braid	3,500,000
Meats (fresh, frozen, preserved)	3,000,000
Tallow	3,000,000
Bristles	3,000,000
Mats and matting	2,500,000
Medicines	2,500,000
Ramie (vegetable silk)	2,000,000
Fire crackers	2,000,000
Fruit (fresh and dry)	2,000,000
Paper	2,000,000
Timber	2,000,000
Tobacco	2,000,000
Chinaware	1,500,000
Feathers	1,000,000
Human hair	1,000,000
All others	34,000,000
Total	$280,000,000

Destination of Exports

Hongkong	$80,000,000
Japan	46,000,000
Russia	33,000,000
France	30,000,000
United States	28,000,000
Germany	12,500,000
United Kingdom	12,000,000
Italy	6,000,000
Korea	5,000,000
Belgium	5,000,000
Singapore	5,000,000
India	4,000,000
Portuguese China	3,000,000
Dutch East Indies	2,000,000
Siam	1,000,000
Indo-China	1,000,000
Philippines	500,000
All other countries	6,000,000
Total	$280,000,000

Imports Classified

Imports consisted of the following:

Cotton goods	$126,000,000
Sugar	25,000,000
Metal and manufactures	22,000,000
Oil	18,000,000
Rice	13,000,000
Dyes	12,000,000
Cigarettes and tobacco	12,000,000
Fish and products	9,000,000
Flour	7,000,000
Coal	6,500,000
Woollen goods	6,000,000
Leather goods	5,000,000
Machinery	5,000,000
Paper	5,000,000
Clothing	4,500,000
Matches	4,500.000
Vehicles	3,000,000
Timber	3,000,000
Medicine	3,000,000
Bran	2,000,000
Raw cotton	2,000,000
Electrical goods	2,000,000
Soap	2,000,000
Soda	1,000,000
All others	96,500,000
Total	$395,000,000

Sources of Supply

Countries of origin are as follows:

Hongkong	$115,000,000
Japan	82,000,000
United Kingdom	60.000,000
India	36,000,000
United States	26,000,000
Germany	21,000,000
Russia	16,000,000
Belgium	12,000,000
Singapore	6,500,000
Dutch East Indies	5,000,000
Portuguese China	5,000,000
France	4,000,000
Indo-China	3,500,000
All other countries	3,000,000
Total	$395,000,000

These figures, however, are rather confusing, because the trade with Hongkong is merely transitional; and the 80 millions of exports to and 115 millions imports from that island, really represent trade with other countries, which it is almost impracticable to define. Assuming that it has the same proportions as the direct trade, this would be in totals as follows:

	Imports from	*Exports to*
Japan	$114,000,000	$64,000,000
United Kingdom ...	84,000,000	16,000,000
India	50,000,000	6,500,000
United States	37,000,000	40,000,000
Germany	30,000,000	17,500,000
Russia	23,000,000	46,000,000
Belgium	17,000,000	7,000,000
Singapore	9,000,000	7,000,000
Dutch East Indies...	7,000,000	3,000,000
Portuguese China ...	7,000,000	4,000,000
France	5,500,000	42,000,000
Indo-China	5,000,000	1,500,000
All other countries .	6,500,000	25,000,000
Total	$395,000,000	$280,000,000

The war has naturally deprived China of the purchases of Germany, Belgium and France, which aggregated about 67 million dollars, and of about 33 millions of purchases by other countries, which will not buy so much as in normal times, because the ordinary demand for Chinese products has diminished greatly, where it has not ceased entirely. This means a shortage of 100 million dollars, or about 35 per cent. of China's foreign purchasing capacity. It is probable, then, that imports will fall in a like proportion, and that we shall loose about ⅓ of our present sales.

It is possible on the other hand that China may be called upon to supply other articles, not marketable before because of competition from other places of production; or that it can increase some of its own lines. The world's trade is so completely disturbed and channels of supply are being so altered, that nothing can be said positively one way or the other.

The Open Ports

The relative importance of the 47 open ports of China is shown by the following figures:

	Population	*Approximate Value of* *Imports*	*Exports*
Shanghai ...	651,000	$70,000,000	$58,000,000
Tientsin ...	800,000	50,000,000	25,000,000
Hankow ...	830,000	35,000,000	57,000,000
Kowloon ...	150,000	21,000,000	9,000,000
Canton... ...	900,000	21,000,000	42,000,000
Dairen... ...	20,000	21,000,000	28,000,000
Kiaochow ...	34,000	18,000,000	17,000,000
Swatow ...	70,000	15,000,000	9,000,000
Newchwang.	60,000	11,000,000	17,000,000
Changsha ...	250,000	9,000,000	6,000,000
Kiukiang ...	36,000	9,000,000	10,000,000
Lappa	10,000	8,000,000	4,000,000
Chunking ...	615,000	8,000,000	9,000,000
Manchouli ...	5,000	8,000,000	2,000,000
Amoy	115,000	7,000,000	9,000,000
Ningpo ...	450,000	7,000,000	6,000,000
Chinkiang ...	184,000	7,000,000	7,000,000
Foochow ...	625,000	6,000,000	7,000,000
Chefoo ...	55,000	6,000,000	10,000,000
Mengtze ...	10,000	6,000,000	8,000,000
Wuchow ...	40,000	6,000,000	3,000,000
Suifenho ...	2,000	5,000,000	9,000,000
Antung ...	34,000	5,000,000	5,000,000
Wuhu	100,000	5,000,000	7,000,000
Nanking ...	270,000	5,000,000	4,000,000
Kongmoon .	62,000	5,000,000	2,000,000
Samshui ...	6,000	4,000,000	1,000,000
Chinwangtao	5,000	3,000,000	3,000,000
Shasi	100,000	2,000,000	....
Hangchow...	600,000	2,000,000	7,000,000
Nanning ...	40,000	2,000,000	2,000,000
Kiungchow .	45,000	2,000,000	2,000,000

All the others are smaller, their aggregate import trade being less than two million dollars per annum. For the sake of completeness their names are here given in the order of their relative importance:

Tengyueh	(population)	10,000
Yochow		20,000
Soochow		500,000
Pakhoi		20,000
Ichang		55,000
Wenchow		100,000
Lungchingtsun		20,000
Aigun		6,000
Hunchun		4,000
Sansing		22,000
Santuao		8,000
Szemao		15,000
Lungchow		13,000
Tatungkow		5,000

Harbin does not appear as importing foreign goods direct. The majority of these names are quite unfamiliar to us, and rarely, if ever, have we a chance of making a sale to any of these places, except in the very few ports with which we have direct communication. Then, all are not seaports; and it is doubtful whether, at this time, it is advisable to go hundreds of miles inland for trade, even to the large and important ports on the rivers. However, it is quite necessary to study conditions and possibilities of trade in all the places where there may be an opening. Differences of language, distances, and habits are a great hindrance to our possible expansion, but they must be overcome, otherwise our trade will improve but very slowly. Japan is our greatest competitor in Chinese trade and it has all the advantages, but it cannot supply all that China needs: even now when the latter's foreign purchases are relatively small.

The "Comprador"

Language, customs and peculiarity of trade must have been responsible for the creation of the "comprador"—a forced intermediary in almost all foreign trade in China. The "comprador" will take a commission for guaranteeing accounts and in most cases for actually selling the goods. Many of the best Chinese merchants do not, or will not, speak any other language than Chinese, and under these circumstances it would be absolutely impossible to do any business without the mediation of the "comprador." Some of these are people of very high financial standing, others not. They are at times engaged in business of their own, totally different from the one of the concern securing their guarantee. The "compradores" work, as a rule, on a commission basis only, although at times they are paid a salary and even office expenses. They know the buyers and assume all risks. As a rule, their guarantee is good, failures of "compradores" being very few.

There are "compradores" attached to foreign banks and they make the loans for them and guarantee them all over the country; to steamship companies and to almost all, if not all, the agencies and branches of foreign manufacturers and commission houses. In one word, there is practically a "comprador" attached to all and every transaction between Chinese merchants and foreign business men.

Currency in a Chaotic Condition

The chaotic conditions of its currency is a great inconvenience in Chinese trade. The different classes of taels confuse almost every one not perfectly familiar with them; and undoubtedly this difference is an obstacle to satisfactory trading. But after all, foreign goods are bought and paid for in gold, or its equivalent, and the local banks of China, as well as the agencies of foreign institutions, know well how to take advantage of the money derangement. Some Provinces are on a silver basis, fairly maintained, and suffer only because of the unsettled conditions of exchange, due to fluctuations in the gold price of the white metal. Other Provinces have inconvertible paper money and foreign exchange fluctuates much more. The new form of Government has not achieved any great improvement along these lines, except in theory. It seems that the intentions are to establish a gold exchange standard system, as in India. If this is done and all the money of China is put on a stable basis, business will be greatly facilitated.

The war caused more trouble; if those already existing could be increased. For banks, as a rule, restricted credit and made foreign transactions far more difficult than they were before. Lately, conditions have improved, although slowly, and China is adjusting itself to abnormality, as prevailing all over the world.

China Not an Industrial Country

China is not normally an industrial country, and it is not likely that it will become one for many years to come. It has a great agricultural and mining future; and it will pay better to follow those phases. However, there are a number of industrial establishments in a few of its principal cities, especially Shanghai, Canton, Newchwang, Harbin, Hongkong and a few others. The most important are cotton-spinning and weaving mills—48 in number, of which 38 are Chinese. There are 27 docks, shipbuilding and engineering works; 62 distilleries, breweries and aerated water works; 39 electric light plants; 41 flour mills; 18 glass and porcelain works; 19 match factories; 34 oil mills; 54 printing and lithographic mills; 20 saw mills; 25 soap and candle works; 18 cement and brick factories; 9 ice and cold storage plants; 3 steel and iron works and others numbering in all about 600 plants of relative importance.

Chinese Railways and Public Roads

There are few railroads, for such an extensive territory; but they now cover about 6,000 miles with 32 lines, there being about 2,000 miles more under construction and some 8,500 miles projected. Of the 6,000 miles open to traffic, about 3,000 are owned and operated by the Government, 300 are Provincial lines and 2,700 are privately owned. At the outbreak of the war China was indulging in a scheme for active railroad building which had been checked by its internal troubles. Although political disturbances have almost disappeared, at the present time it is difficult to raise money for this purpose. When it is possible for China to build its new lines, we shall probably have a large share in supplying materials. In the meantime, the maintenance of the present lines offers an opportunity. We have a share already but we may increase it.

China has a large mileage of high roads, many of them in good condition and suitable for automobiles; but the majority of them are wretched. The country does not have, as yet, a general purchasing capacity for buying and maintaining pleasure cars; and time is as yet of but too little value to attempt to save it in prompt delivery of merchandise and products. As a rule, streets are narrow and do not permit the extensive use of motor-cars.

Tariffs

The Chinese tariff gives no preference and establishes no disadvantages against our goods. With few exceptions the Customs charge a flat duty of 5 per cent. ad valorem and a small transit tax called "likin."

All manufactured goods have a market in China, the main needs being, however, for cotton goods—the sole fabric of the clothing for the poor people—oil for lighting purposes and some of the cheapest foodstuffs. Its population is being modernized gradually, and better homes and clothes are increasing in demand; but slowly.

Chinese finances have always been in a turmoil, only the custom taxes having been under good management. Its foreign debt exceeds 500 million dollars, which, if considered in proportion to the population, would seem very small, not over $1.25 per head, but it is quite heavy, if the general revenues of the country are considered, and these amount to only about 200 million dollars.

Banking

There are Chinese banks and agencies of foreign banks. There is no doubt that the latter will give the better attention to the collection of foreign bills, it being easier to communicate with them. The Hongkong and Shanghai Banking Corporation is one of the financial institutions represented at practically all important centers; as is, also, the Chartered Bank of India, Australia and China. The International Banking Corporation (American) is not yet widely represented; but if the development of our financial intercourse justifies, it will, no doubt, promptly extend its facilities.

Shipping from and to China has not been particularly difficult. Before the war there were no less than 16 different lines making regular trips. During the last twelve months or more, this intercourse has been more or less disturbed, but sailings from both our coasts are fairly regular now.

Foreign China

The foreign possessions in China are:

British	Hongkong.
French	Kwan Chau Wan.
Portuguese	Macau.
Japanese	Formosa, Kwantung and lately Kiao Chao captured from Germany.

By far the most important of all is Hongkong, which for many years has been the key to the Far Eastern trade and practically its banking and commercial center. This colony comprises the Island of Hongkong (capital, Victoria), ceded to Great Britain in 1841; the peninsula of Kowloon, ceded in 1861, and the extension territory and islands of Lan Tao and Lamma, leased for ninety-nine years in 1898. In all, it covers an area of 400 square miles (the Island of Hongkong, 29), and has a population of about 500,000, of which only 8,000 to 9,000 are Europeans.

The importance of the trade of Hongkong can be realized by the fact that in 1914 there entered the port 4,236 foreign built steamers, 4,213 river steamers, 3,403 launches and 27,463 Chinese junks, engaged in foreign trade, with a total tonnage of 36,750,000 tons.

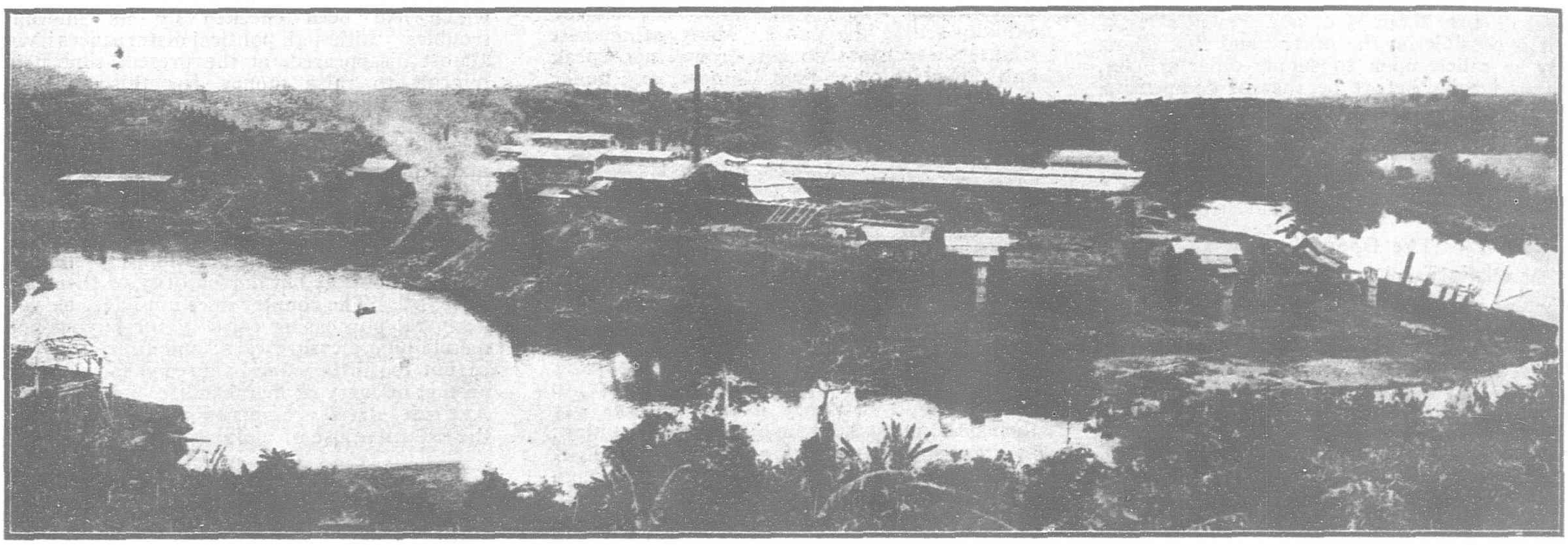
Hongkong is a free port and is separated from the mainland by a narrow strait, the Lyemoon Pass.

The money of Hongkong is the British silver dollar of fluctuating value. It is the only British colony where silver is the standard, and this is probably due to the fact that China is also under the same monetary system. The banking business of Hongkong is enormous, and connections with all the world are most satisfactory. All the banks doing business in the Far East have branches there. Many Chinese firms doing a large business in the main land, as well as with Japan, India, the Straits Settlements and other Asiatic countries, have offices and warehouses there. Hongkong may be considered as the most important market of China.

The French territory consists only of a parcel of land on the southern coast of Kwangtung Province and two islands in the bay; in all about 200 square miles, with a population of 170.000. The port is free, that is, no import duties are charged, and the total volume of trade amounts to 3½ million dollars. It is under the administration of the Governor of Indo-China.

The Portuguese colony of Macao (or Macau) was the first European settlement in Asia—1577. Its area is only four square miles and it has a population of about 80.000. It was a very important distributing center until superceded by Hongkong. Its transshipping trade, however, amounts to some 18 to 20 million dollars per annum.

The Japanese possessions in China are (1) the Island of Formosa (Taiwan), ceded in 1895; (2) the territory of Kwantung (southern part of the Liaotung peninsula), formerly leased to Russia, the trade of which is described as being Japanese.



Mill of Insular Lumber Company on Island of Negros

SUCCESSFUL AMERICAN-PHILIPPINE LUMBER CO.

There is at least one sawmill in the world that is financially successful in these times of lumber market depression. It is the property of the Insular Lumber Company, located three hundred miles south of Manila on the Philippine island of Negros Occidental. It is American-owned and American-managed. Its export grades are eagerly sought in world markets particular about high-class finishing woods. The handsomest office building in Canada—the Royal Bank of Toronto—is finished with lumber from this mill. Its contractor ran short and was compelled to use a few strips of genuine African mahogany in completing the job. Woodworking experts are unable to tell the difference between the Philippine red lauan and the real mahogany.

In New York, the export product of the Insular mill not infrequently brings as high as $120 a thousand feet. Lower grades are readily sold at reasonably profitable prices in local Philippine markets, which require upwards of 100,000,000 feet of lumber annually.

The Insular Lumber Company is controlled by New York men. The president of the company is W. P. Clark, of Olean, who also is the president of the famous Clark Bros. Company, builders of high-grade sawmill machinery. W. P. Reid, of New York, is secretary of the company; C. E. Sherman, of New York, is treasurer; and A. E. Edgcomb, of New York, is the general sales manager in the United States.

The company's timber concession on Negros Occidental is sixty-nine square miles, averaging 25,000 feet of timber to the acre. The first mill was established in 1907. It succeeded moderately. Any sawmill with Clark Bros. equipment will succeed from the manufacturing standpoint. However, the owners were not satisfied with general results. They came to the Pacific Northwest for a man that could get those results, selecting Walter Macfarlane, then manager of the Western Lumber Company, of Aberdeen, Wash.

Mr. Macfarlane went to the Islands in the fall of 1910. In 1911 the Insular Lumber Company's mill was practically rebuilt, giving it a capacity of 75,000 feet of lumber in ten hours, which is equivalent to about twice that capacity in a Pacific Northwest mill, owing to the fact that Philippine logs, like all hardwood logs of the tropics, only yield lumber on about fifty-five per cent of the log scale.

The mill is equipped with Clark Bros. machinery, including a double band head rig and a band resaw on the chains. In mill and logging operations the company employs eighteen white men and eight hundred natives and Chinese. In the woods operations the company has nine miles of logging road, four Shay geared locomotives and thirty Seattle Car & Foundry Company logging cars. Seven Washington Iron Works donkey engines handle the primary logging operations.

Philippine woods are making very satisfactory headway in the matter of market extension. Last winter the native woods were successful in bids submitted for supplying the United States army requirements in the Islands. This was a $50,000 contract figuring something like 2,430,000 feet of lumber.

Some idea of recent marketing developments for the Philippine native woods may be gained from the fact that in 1913 the exports were valued at about $236,000 and in 1914 these exports carried a value of $376,000.

The lumber markets of China are becoming more and more interested in Philippine lumber, especially in the Hongkong district, where the Philippine product has been brought into sharp competition with Singapore and Borneo woods and has won a place in the trade through sheer quality.

The forest area of the Philippines comprises about 40,000 square miles, or about one-third of the total area. Seventy-five per cent of this forest area, say 30,000 square miles, is covered with forests in which the members of the dipterocarp family predominate. The dipterocarp is a genus of tall timber ranging from India to the Philippines, and commonly divided into three tree groups, namely, the hard and durable yacals, the apitongs and the lauans. The apitongs and lauans furnish by far the greatest amount of timber. From many standpoints the dipterocarp family is to the Philippines and Orient what the pine and oak families are to the United States.

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

Shasi-Singyi Railway.—According to the report of engineers despatched by the Communications Department to survey the route for a railway starting from Shasi in Hupeh and extending to Singyi in Kweichow, after passing through Hunan, the entire line will measure 655 miles, with a branch from Changteh to Changsha extending 105 miles. The following is the distance in miles between important towns:

Shasi—Lichow, 50; Lichow—Changteh, 40; Changteh—Shenchow, 110, Shenchow—Fenghuangting, 45; Fenghuangting—Yuanchow, 35; Yuanchow—Huangchow, 30; Huangchow—Enchow, 30; Enchow—Chenyuan, 30; Chenyuan—Huangping, 30; Huangping—Pingyueh, 30; Pingyueh—Kweiyang, 60; Kweiyang—Anshun, 60; Anshun—Chenning 20; Chenning—Chenfeng, 35; and Chenfeng—Singyi 40.

Shantung Line Makes Money.—The monthly income of the Shantung railway line which was 50,000 to 60,000 yen at the time when it was placed under Japanese management, has now been increased to 200,000 yen, reports the Yorozu. When the monthly expense of 170,000 yen is subtracted there is a profit of 30,000 yen. The Japanese authorities at Tsingtau are endeavoring, it is said, to repair the tracks and rolling stock and will try to make the line pay better than it did under German management.

Kirin-Changchun Railway.—The following statement regarding the Changchun-Kirin Railway, control of which has been given by China to Japan, is from the Japanese press and outlines contemplated improvements:—

Years ago, the South Manchuria Railway Co. approached the authorities of the Kirin-Changchun Railway to establish through traffic. The Chinese were not inclined to entertain the proposition. It was thought the Kirin-Changchun Railway, extending only 80 miles, would be made a cat's paw to the trunk road. But when through traffic is established, many things must be improved, including the Kirin-Changchun coupling apparatus which is different in style and in a position that makes coupling with the rolling stock of the S. M. R. Co. impossible. Most of the passenger cars are too old for service.

At present, the line has 13 engines and 262 passenger and freight cars.

The staff of the company consists of 5 Japanese and some 180 Chinese, rather too nany persons for a short railway, and salaries ire higher than those paid by the Peking-Mukden railway.

The railway revenue shows a monthly urplus of about $17,000 and in the future vhen places along the line develop, the profit hould greatly increase in proportion. The ompany's receipts for the first five months his year were in yen:

January, Y67,865; February, Y60,125; March, 79,625; April, Y28,795; May, Y54,080.

In April the income was decreased owing to oods.

The railway is completed all but the tunnel Tumen Mountain.

The road is substantially built and the top the embankment is 18 feet wide at the arrowest point, whilst the width of a cutting fifty feet. Bridges are much more strongly ilt than the requirement of the Peking-ukden Railway, so that they can fully stand the weight of a train. Sixty pound rails are used, on which an engine weighing about 80 tons speeds at the rate of 28 miles per hour on an average. They must be changed to heavier rails if traffic increases, but will prove serviceable so long as they do not carry an engine heavier than 90 tons. Ballast is being constantly replenished, and the road-bed is steadied by degrees.

SHIPPING

Dutch Line's New Service.—The San Francisco Chamber of Commerce has just informed the Bureau of Foreign and Domestic Commerce that, as the result of nearly a year of endeaver on its part, the Java-China-Japan Lijn, of Amsterdam, is to establish a monthly service of first-class cargo steamers between Batavia, Java, and San Francisco, the new service to start with a sailing from Batavia on December 15. Steamers will load at Batavia, Cheribon, Samarang, Soerabaya, and Makassar, thence proceed to Manila, Hongkong, and San Francisco. The first vessel of the new service will reach San Francisco in February. The call at Manila is said to be the result of an invitation extended by the Manila Merchants' Association and seconded by Governor General Harrison.

Foochow Shipping Returns.—The total number of steamers entered and cleared at Foochow for the quarter ended June 30, 1915, was 389 ships of 264,748 tons, an increase of ten ships but a decrease of 39,603 tons over the same quarter last year. Of the total 39.3 per cent. were British against 33.6 per cent. the year before, 36.8 per cent. Chinese against 26.8 per cent., and 24.6 per cent. Japanese against 24.2 per cent. the year before.

New Chinese Line Starts.—That the first steamer of the new Chinese Pacific line has sailed from San Francisco, was the information conveyed in a cablegram to the bureau of posts early in November. The cable announced that the China had sailed from San Francisco on October 30 with 650 bags of U. S. mail for Manila.

On October 14 the Daily Bulletin received a cable from Washington announcing that the Chinese company had purchased the China from the Atlantic Transport Company, and that she would leave San Francisco on the Pacific Mail schedule of the Manchuria, October 16. This sailing was postponed to the schedule of the Nile, which was due to sail from San Francisco, October 30, via Honolulu and Japan, and to arrive at Manila November 25 sailing on the return trip to San Francisco via Hongkong, Japan ports, and Honolulu.

The Chinese papers report that some Cantonese merchants are preparing to subscribe stock in the new Chinese steamship company of which a prospectus has been published stating that capital of the new concern will be 5,000,000 yuan, in 100,000 share of 50 yuan each.

Pacific and Eastern Line.—According to a despatch from San Francisco, the Pacific and Eastern Steamship Company has been registered at Albany, N. Y. The company, under the American flag, will maintain a Pacific navigation service with the co-operation of Chinese. The capital of the concern is G. $2,000,000, one half of which Americans will take up and the other half will be subscribed by Chinese. Mr. John Mitchel has been nominated president, while among the Chinese directors are one adviser and two secretaries to the Chinese Legation. Mr. Hsia, former Chinese Minister to Washington, is one of the big shareholders. The Chinese Legation is said to have stated that the Chinese government was connected with the new concern. Since the Pacific Mail Company retired, much more criticism has been heard against the government in connection with the Seamen's Law, and the administration welcomes the formation of the new company. The Ship Purchase Act will be again introduced, and if the new company be placed under unfavorable conditions, after the said act is passed, the government will take measures to remedy this, it is said. Although the president of the company denies that it has any relation to the government, it is considered a fact that the United States government is unofficially connected with the formation of the company.

French Mail Adds Ship.—The Messageries Maritimes is putting a new steamer, the Athos, on the line from Europe to Japan and China via Saigon and Haiphong. The Athos was scheduled to leave Marseilles Nov. 10 on its maiden trip. It is of 19,640 tons displacement and 11,000 tons cargo capacity, has accommodation for 110 first-class, 90 second-class and 110 third-class passengers and an average speed of 14 knots.

Philippines Plan Tonnage Tax.—The tax committee of the Philippines has recommended the passage of a law which provides for the collection at all ports and places in the Philippine Islands of navigation and port charges. On vessels arriving from non-Philippine ports a charge of fifteen centavos (P.0.15) per net ton as expressed in the vessels' national certificates of registry. On the entry of a vessel from a port or place not in the Philippine Islands loading or discharging cargo which is less than the net tonnage of the vessel, dues of forty centavos (P.0.40) per thousand kilograms may be imposed, at the option of the master or consignor or consignee of the cargo, in lieu of the tonnage tax above prescribed. On the entry of a vessel only to discharge or take on board passengers and their baggage, the tonnage tax above prescribed shall not be imposed. Exemptions are vessels belonging to or employed in the service of the Government of the United States or foreign government vessels not engaged in trade; vessels in distress and yachts belonging to an organized yacht club of the United States or of a foreign nation which imposes no tonnage or equivalent taxes on American yachts. It is calculated by the board that P.200,000 will accrue to the Philippine government annually by the imposition of tonnage dues.

Siam's Queen to Have Yacht.—A motor yacht is being built at the Bangkok docks for the use of the Queen Mother. The vessel is 55 ft. in length and 11 ft. beam and will be propelled by two sets of four cylinder motors.

Japan's South Sea Service.—The new South Sea service will be opened shortly by the South Sea Trading Company under the protection of the Imperial Navy. The first liner to start, the *Miyoshino Maru*, 4,200 tons, will ply between Yokosuka and Truck Island and the second boat, the *Heijun Maru*, 1,691 tons, between Truck Island and the Marshal Group, while the third boat, the *Koyo Maru*, 1,422 tons, will serve Truck Island and the phosphate fields of Angaur Islands.

Navy Increase in Japan.—At the coronation naval review which was held at Yokohama December 4, the new battleship Fuso and 130 warships with a total tonnage of 600,000 participated. Since the first naval review was held at Kobe in 1890, the following figures of the past six reviews will show the progress of the Japanese navy.

Year	Warships	Tonnage
1890	30	34,082
1900	49	129,601
1903	60	213,621
1905	166	302,650
1912	124	403,701
1912	113	443,830

Japan's New Battleship.--The launching of the battleship Yamashiro, recently built in the Yokosuka naval dock yard, was successfully carried out on November 3. Prince Hiroyasu Fushimi, represented the Emperor in the ceremony. A large number of high naval officers and invited guests to the number of 1,000 witnessed the ceremony in the yard. The Yamashiro was started November 20, 1913. Her displacement is 30,600 tons, length 673 feet, width 94 feet, depth 50 feet, draught 28½ feet. She will carry 12 14-inch, 16 6-inch, 19 3-inch and other guns.

The battleship Fuso, which has been undergoing trial for some time at Kure, was placed in the First Squadron early in the month.

Yokosuka Naval Dock Open.—The Yokosuka naval dock, the largest in the Orient, is now completed and will easily accommodate any battleship of 30,000 tons. The completion of such a large dock in Japan is counted as a material addition to Japanese naval power.

Progress of Japan's Shipping.—According to a recent investigation, Japan's progress in shipping in the last ten years is as follows:

Years	Number of vessels	Tonnage
1905	1,390	932,061
1906	1,492	1,032,742
1907	1,574	1,108,692
1908	1,618	1,152,575
1909	1,653	1,189,957
1910	1,703	1,224,091
1911	1,854	1,375,083
1912	1,981	1,430,329
1913	2,072	1,513,941
1914	2,133	1,577,025

RIVERS AND HARBOR

Conservancy Work in Hunan.—The Director-General of the National Irrigation Bureau and the Acting Governor of Hunan, have memorialized President Yuan Shih-k'ai on the conservancy work in Hunan as follows:

Hunan has hitherto been know as a 'water province;' and the water of Hsiang, Chu, Yuan and Feng rivers flows into the Tung Ting Lake, which also receives the water of other streams and rivulets. Formerly Taiping and Chaohsien formed the outlet of this Lake; and in the 3rd Year of Hsien Feng and the 9th Year of Tung Chih, the embankments of Aochi and Sungchu rivers respectively were washed away. Since then the water of the lake has rushed down from the northern part of the lake at four points. Many islets have been formed, and the inhabitants have erected dams to prevent inundation. Through the long neglect of conservancy works the people of this province have suffered constantly from the flood. When Chen Chun-ming was Governor of Hunan, he requested the Viceroy of Hupeh to send delegates to his province to devise means to save the province from flood disasters. Wang Nai-chen, Wei Ching-hsiung, Wu Pingheng and Ping Chun, were delegated for the Conservancy work and decided that the river beds should be dredged, adequate outlets provided for the water of the Lake, the dykes to be strengthened. Soon after they began dredging with foreign machinery, the Revolution broke out. As Hunan has suffered more from floods than other provinces we have therefore made special plans to save the inhabitants. Our plans are similar to those drawn up by the delegates. With regard to the dredging of rivers, we have arranged that the rivers in Hupeh province should be dredged by the authorities there, while those in Hunan as well as the repairs of the Lake, water-courses and embankments of rivers should be done by Hunan province.

In order to secure success it is imperative that a man of experience in Conservancy work should be appointed to draw up plans for the conservancy work of the whole province. Wei Ching-hsiung, former Perfect of Yuehchow District, who drew up the Conservancy plans of this province in former days, was asked to submit a detailed plan for the irrigation of this province. When his suggestions were sent to the National Irrigation Bureau for approval they were admitted to be practical and should be at once put into execution. We recommend that he be appointed Chief of the branch Irrigation Bureau of Hunan. In Yuehyang and other eight hsiens at the vicinity of the Great Lake, there have been quarrels among the inhabitants over the lands affected by the flood; and we have decided that the title deeds of the land owners be ratified by the officials at the payment of 4 copper cents for each mou. It is expected that the inhabitants of these districts will be glad to pay this smail amount of sum in order to save themselves from endless quarrels. But when the work of dredging river beds begins, more important points shall first be attended to and other means be raised to meet new expenses.

The President replied by appointing Wei Ching-hsiung and instructed the Ministry of Interior to take note of the memorial which he approved.

Huai River Conservancy.—Ni Tutuh is carrying through part of the Huai River Conservancy scheme, according to the North China Daily News. He is largely using impressed labour, five families supplying one workman. It seems that he is only trying to drain the lowlands in the extreme north of Anhui. It is said that he has 45,000 men beginning work now. Part of the work is reopening the "Crying River" which was cut by China's typical tyrant, Sin Yang-ti. It is in this region that the American Red Cross proposes to expend many millions of dollars in a conservation scheme, details of which were given in the Far Eastern Review for April, 1915.

Moji Harbor Work Lags.—According to a report from the British Consul at Shimonoseki, the improvement of Moji harbour and the fairway of the Shimonoseki Straits progresses more slowly than was originally estimated, owing to insufficiency of funds. The dredging of the harbour, however, made considerable progress in 1914, and a new section, deepened to 28 feet, was added to the available anchorage space. Work has been begun on the removal of the Moji Shoal, which constitutes a serious obstacle to the navigation of the Strait and the manœuvring of vessels in the harbour. It is estimated that two years will elapse before the work is completed. The general scheme provides for the deepening of the harbour and fairway to a minimum of 32 feet; upon the completion of the work ships of any size will be enabled to anchor with comparative safety, and the present difficulties of navigation due to the rapidity and irregularity of the tidal currents, and the varying depth of the Straits, will be largely removed. A long-needed improvement was added on the completion in 1914 of the new railway wharf, the ferry steamers between Shimonoseki and Fusan now coming to the wharf. On the completion of the improvements to the terminal station the trains will run alongside the steamers. A new dry dock, under construction since 1913, has been opened on Hikoshima Island, at the western entrance to the Straits. The dock is equipped with up-to-date repairing plant, and is 260 feet in length by 56 feet in breadth on sill. It can accommodate vessels up to 6,000 tons gross.

BUILDINGS

Manila's New Post Office.—A bill providing means by which the government may erect a new post office in Manila has been introduced in the Philippine assembly and the public works appropriation, it is learned, will carry an item of half a million pesos for that purpose. The bill as introduced, authorizes the loan from the postal savings bank reserve of P600,000 for the post office building, the loan to be repaid from insular funds in 10 equal annual installments of P60,000 each, with interest at four per cent per annum. The measure also provides that the insular government may accept such a loan from the postal savings bank. An effort will be made to have the bill reported for final action at an early date. The need for a new post office building is so well recognized that there is but little doubt that funds for its erection will be provided.

Manila Chinese School.—Papers of incorporation have been filed in Manila by the Chinese School Building Association, organized with a capital stock issue of P300,000.

The new organization will take direct charge of the plans laid some time ago for the establishment of a modern and fully equipped school for Chinese children in this city, replacing the structure near the Meisic station which is no longer adequate for the needs.

The incorporators include a number of the most prominent Chinese residents of the city of Manila, among them being Carlos Palanca, Benito Siy Cong Bieng and Antonio M. Heras Lim Hing. Of the total capital stock, P125,000 has already been subscribed by the incorporators, and P31,650 paid in cash.

Iloilo Custom House Bids.—Bids were opened at the bureau of public works on November 5, for the construction of the new Iloilo custom house, six Manila firms presenting tenders. It is expected that other bidders from Cebu and Iloilo will have to be reckoned with, as tenders were received there, and the figures of these bidders have not been announced as yet. The firms were asked to submit figures for the construction of the custom house with either cement tile or Spanish tile roof, and the first amount set after each name is for the former style of construction:

Tan Samco P254,500, P256,000, 540 days.
City Construction Co. P362,314, P361,496, 350 days.
Gotauco P279,495, P279,495, 450 days.
John Gordon P260,724, P260,724, 400 days.
S. C. Choy and Co., P278,460, P276,870, 550 days.
E. T. Yu Chengco P257,000, P256,500, 400 days.

Hankow Bank Building.—The Hankow branch of the Bank of China has signed a contract for the erection of a new bank building in Hankow, at the cost of $40,000 to $50,000 gold. The architects are Atkinson & Dallas (Ltd.), Hankow, and the material is to be brick and reinforced concrete.

New Zealand Building Notes.—Matters in the building line are very greatly improving now that money is more plentiful, and the outlook in Auckland is favorable. This will call for additional builders' hardware, corrugated iron, roofing, etc., from the United States, because European manufacturers are unable to fill orders in most of these lines. W. C. Johns & Sons have just taken the contract to erect buildings for the Myers Park Kindergarten School at a cost of $27,807, according to plans drawn by Chilwell & Trevithick. W. E. Hutchinson has the contract to erect a five-story and basement office building, at a cost of $53,531, after plans drawn by Mr. A. B. Herrold. This structure is to be fireproof and up to date. Three stories are being added to the three-story John Court Building, at a cost of $100,000. This will make an up-to-date six-story commercial building about 100 by 100 feet, to be used as a department store. The foundations are being put in for a four-story brick addition to the Auckland Farmers' Freezing Co.'s plant located in this city, to cost $75,000, after plans drawn by Chilwell & Trevithick. This structure will contain the latest provisions for cold storage, such as insulated floors, walls, etc. One of the suburbs of Auckland proposes to expend $291,990 on building new streets within the next year. This suburb has just completed a $291,990 drainage system, and many fine residences are being erected and under contemplation in that section.

Tokyo Y. M. C. A. Building.—The most complete building in the Far East devoted exclusively to physical education will be erected within a year in Tokyo. This will be the new gymnasium of the Tokyo Young Men's Christian Association. Word has been received from New York stating that funds for the new gymnasium are released. The campaign for the association's new auditorium also is nearing conclusion, the two projects calling for a total expenditure of 105,000 yen.

Only the funds for the gymnasium are as yet available and the estimates and specifications are already under way. The auditorium will adjoin the gymnasium and will be on the site of the present auditorium.

Of the entire amount 45,000 yen has been contributed by the association's supporters in Japan. The whole fund will amount to about 150,000 yen.

The gymnasium will cost, including fittings, 55,000 yen. It will be built of reinforced concrete, faced with brick, and will measure 100 by 64 feet. The plans provide for a swimming pool, the first of the kind in Japan, which will be the most striking feature of the whole plant. No expense will be spared to make this plunge absolutely up to date, hygienic and attractive in every respect. It will be of standard size, 60 by 20 feet, from 8 to 4 feet in depth.

ELECTRIC LIGHT AND POWER

Chefoo Electric Lighting.—Chefoo is now splendidly lighted. About 1,000 poles are in use with lights of 16, 25, 50, 100, and 200 candlepower. Outside the harbor there are three 1,000-candlepower lights. Consumers are classified as meter consumers, regular consumers on monthly contract, and occasional consumers. The charges are $0.35 Mexican per kilowatt-hour, with $0.50 Mexican minimum charge per lamp per hour. $0.50 Mexican per meter per month. The charges per lamp on monthly contract, ranges from $0.60 Mexican for 5 candlepower, $1.20 for 16 candlepower, $2.50 for 50 candlepower to $20 for 1,000 candlepower. The Chefoo Electric Lighting Co., was formed on January 16, 1913, with a capital stock of $100,000 (Mexican) subscribed principally by Chinese. It was duly registered with the board of works at Peking on May 27, 1913, and received its charter on that day. The plant contains the following machinery: Two complete sets of 100-kilowatt alternators, consisting of two alternators, 3-phase, 50-cycle, 3,300 volts; two vertical compound engines; three Babcock-Willcox boilers; two jet condensers and pumps; two boiler-feed pumps, purifier and heater (combined); and the necessary switchboard. The manager and assistant manager are Chinese, but the chief engineer, his assistants, and electricians are Japanese. The company has spent about $50,000 in material and for erecting poles, etc., throughout the city, and has contracted a loan for $50,000 (Mexican) from the Bank of Industry and Commerce, at Chefoo. The company expects that the number of consumers soon will necessitate the further purchase of a 200-kilowatt alternator set.

Hydroelectric Power in Japan.—Water power for the production of electricity shows a remarkable increase in comparison with last year:—

Water-power, 603,985, increase 6,489 kilowatts
Steam-power, 142,160, decrease 5,678 kilowatts

Water power electricity has increased while steam power electricity has decreased and at the end of June this year steam power electricity was about 25 per cent. of water power electricity. According to official investigations, the number of electric power and tram companies in Japan at the end of June was 617, with working capital of 609,465,605 yen, producing 746,145 kilowatts. There was an increase this year of 16 companies, 1,194,300 yen in capital and 811 kilowatts output. The following is a classification of the companies' capital and electric power according to the nature of business:—

	Number	Capital yen	Power kilowatt
Power supply ………	527	310,936	600,871
Electric Tram ………	44	51,245	5,880
Power supply, Tram and Light …………	46	247,284	139,394
Total…………	617	609,465	746,145

Hangchow Doubling Plant.—American machinery supplied by Andersen, Meyer & Co., Ltd. is to double the plant of the Electric Light Company of Hangchow and will add some 12,500 lamps of 32 c.p., to its present service.

The $100,000 addition of machinery will increase the capacity of the plant from 480 kilowatts to 980. The new plant will have one new turbine with another in prospect.

British N. Borneo Lighting Co.—The Jesselton Ice and Power Co., British North Borneo, have now completed the erection of the electric lighting plant and for some weeks experimental lights have been in use. As soon as the lighting arrangements are complete the manufacture of ice will be taken up.

FINANCE

The Bank of China and the Bank of Communications.—A Presidential Mandate was issued on November 1 as follows:—"Owing to the financial difficulties of the Government for the past few years, wholesale reform has been introduced in the financial administration; and now receipts are sufficient to cover all expenditures of the State. However hereafter there are important financial affairs, such as the unification of currency and the improvement of the management of Public Loans, which require to be greatly developed. It will be noticed that the Bank of China and the Bank of Communications, which are in nature National Banks, have won great public confidence, and they have for years past rendered effective services in the management of the Government Treasury and the issue of bank notes. These Banks are hereby ordered to continue to expand their business according to the policy which has hitherto been followed by them. Thus they will be able to render services for the furtherance of Currency Reform and the success of the Public Loans. These two banks should share together the above-mentioned responsibilities and do their best so that the plans of the Government for the improvement of currency system and the reform of the financial administration may be attained. The Ministries of Finance and Communications are hereby ordered to issue the above instructions to these two Banks."

Commenting on the above a writer in the *Peking Gazette* had the following to say:—

The issue of a Presidential Mandate on Monday deputing the Bank of China and the Bank of Communications to take charge of affairs in connexion with Currency Reform and the issuance of Domestic Loans deserves more than passing notice. From the full translation we published yesterday it will be observed that the Mandate begins by remarking that the State, on account of the financial stringency prevailing in recent years, has had to direct its full attention to reform with the result that its revenue is practically sufficient to cover all expenditure. The prospect is therefore bright, for the State is freed from the worry of a deficit, and can henceforth devote itself to the reforms connected with the country's finances, i.e. currency reform and the importance of our national credit.

While Currency Reform is still receiving the consideration of the Authorities concerned, it has already reached such a stage that the time has arrived to put the result of past deliberations into practice. The Government on two occasions issued Domestic Loan bonds with satisfactory results considering the difficulties to be overcome and the novelty of the venture itself.

The two banks deputed to take charge of these matters are both well-known. The Bank of China is a Government Bank, and such matters naturally fall within the scope of its functions and duties. The Bank of Communications has sixty per cent. of its capital subscribed by private individuals while the Government is interested to the extent of 40 per cent. In the past, the Bank of Communications has only been unofficially recognized as a Government Bank but now its status is officially defined by the Presidential Mandate. It is now officially regarded as a State Bank and is authorized to assume charge, concurrently with the Bank of China, of matters connected with currency reform and the improvement of the national credit.

The President pays a deserved tribute to the Bank of Communications on its past success in putting through responsible transactions for the Government. He urges it to extend its operations further with a view to assisting the Government in its future activities. The credit of the Bank of Communications is extolled and its satisfactory performance of the functions of a State Treasury and in the circulation of paper currency is also commended.

From other sources, we learn that the Bank of Communications has made remarkable progress in recent years, especially as it has survived the storms of the Revolution of 1911 and the Rebellion of 1913, when quite a number of Chinese Banks failed or suspended business. The profit of the Bank of Communications last year amounted to about thirty-four per cent. of its paid-up capital and a dividend of 9 per cent. was declared to shareholders. It is believed that with the increase of its activity in other directions and the expansion of its business, the Bank will show still better results for the present year. While the Bank of Communications deserves to be congratulated on its enviable success, we observe with regret that in spite of the vast extent of the country and the multitudinous opportunities for profitable banking, there are still so few big financial institutions like the Bank of Communications to assist the Government in the difficult task of effecting the financial reforms that require to be undertaken.

Buys International Banking Corporation.—Telegraphic news has been received in Shanghai that the National City Bank of New York, has bought a controlling interest in the International Banking Corporation. This wire has been confirmed by J. Selwyn Tait, formerly Manager of the Washington D.C. branch of the corporation. The National City Bank is the largest in the United States and one of the largest in the world. It is often referred to as "the Rockefeller Bank" owing to its close connection with various Rockefeller interests.

The main office of the International Bank is in New York, with branches in London, Bombay, Calcutta, Singapore, Hongkong, Canton, Shanghai, Hankow, Peking, Manila, Cebu, Kobe. Yokohama, San Francisco, Panama and Colon. The president of the National City Bank is Mr. Frank A. Vanderlip. It has a capital of G $25,000,000 and a surplus of G $35,000,000; deposits over G $275,000,000; total assets over G $360,000,000. The National City bank was established in 1812.

The purchase of the International Bank is interesting in connection with the recent expansion of the National City Bank. By the provisions of the new currency and banking law, the Reserve Bank Act, which was passed by Congress at the last session, American banks are allowed to establish branches. In conformance with this, the National City Bank has been establishing branches throughout South America with the idea of increasing the facilities of American business abroad. Control of the International Bank will therefore give it an organization in the Far East already thoroughly equipped and firmly established and go far towards completing a chain of banks almost worldwide. The manager of the Shanghai branch of the International Bank, Mr. H. C. Gulland, left for Great Britain a short time ago and his place is being filled by Mr. G. Hogg who came up from Hongkong. Mr. Hogg was asked to confirm the transaction but said that in the absence of official notification he did not feel authorized to say anything.

Calls Chinese Bonds Lottery.—That the new Chinese government savings bank plan by which depositors get a chance at annual drawings for prizes constitutes a lottery within the meaning of the Philippine law is the decision of Judge Ostrand, ruling in connection with the seizure of four packages of the bank's "receipts," addressed to Tan Bee Kin, by the Philippine customs officials. Depositors in the Sin Hua Savings Bank, established by the Chinese government, receive numbered tickets, which at the end of three years may be exchanged for the original deposit without interest. The interest is used in liquidating prizes awarded in annual drawings to holders of numbers selected by chance. The first drawing was held on April 25. The next drawing is set for April 25, 1916, and the last for October 25, 1917. Judge Ostrand holds that the deposit receipts or premium bonds are lottery tickets in view of the chance feature pertaining to the distribution of the interest, and are therefore subject to confiscation. The confiscation of the tickets in question has been ordered and they will later be destroyed. All money collected by way of prizes or premiums on these tickets will be forfeited to the insular government.

Program of Salt Gabelle.—With a view of adjusting the gabelle so that the revenue may be increased, the following programme will be carried into effect from next year according to the Chinese press: In the First District, that is Chihli, Eastern Provinces, Shantung, Hunan and Liang-Huai, the amount of salt to be sold in one year is estimated at 20,620,000 piculs. On them, the duty of $2.50 per picul shall be levied, which will bring a revenue of $51,555,000. In the Second District, or Liang-Che, Szechuan, Fukien, Liang-Kwang, Yunnan, Ichang, Shasi, Sungkiang, Huan-Si and Huan-Tung the amount of salt to be sold is estimated at 14,280,000 piculs. $3 a picul shall be levied on them, which will net the authorities $42,840,000. The total aggregating $94,390,000 shall be counted in the Budget for next year as the revenue from the gabelle.

China to Redeem Notes.—The Committee on reform of the currency system, according to press reports from Peking, has decided upon the following method of redeeming paper notes, which is expected to be put in operation within the month: A loan will be raised for redemption of notes in Hunan, Hupeh, Szechuan and the Eastern Provinces. The proceeds of sales on government property shall be appropriated for the purpose in Kiangsi, Shantung and Shansi. In Chihli, Kiangsu, Anhui and Honan, local tax will be used. In Kansu and Sinkiang, the surplus of the gabelle will be used.

Chinese Banks' Reserves.—According to recent investigations of the Financial Department, reserves of the following 14 government banks total $25,915,995:

Kwangtung Kwan-Chien-Chü, $10,265,000; Kirin Kwan-Chien-Chü, $3,360,000; Chekiang Government Bank, $3.000,000; Yunnan Fushen Bank, $2,085,000; Chihli Government Bank, $1,820,000; Kiangsi Minkuo Bank, $871,700; Hailungkiang Kwanghsin Kungssu, $845,295; Fengtien (Mukden) Government Bank, $736,900; Hunan Bank, $736.100; Hailungkiang Government Bank, $679,000; Kiangsu Bank, $600,000; Szechuan Chunchuanyuan Bank, $600,000; Anhui Chunghua Bank, $200,000; Kwan-Chien-Chü, $117,000.

Shanghai Silver Stock.—The stocks of silver in the banks of Shanghai on November 1 consisted of Tls. 61,978,000 (Mexican Dollars 84,900,000) $18,850,000, and 568 Bars. Of this total Chinese banks, including the Bank of China, the Bank of Communications and the Commercial Bank of China, held between them Tls. 6,100,000, and $8,700,000.

China's Income Tax.—China is to impose an income tax under a law fashioned in many particulars after that of the United States. The public's generous response to appeals for the Patriotic Defense Fund is said to have encouraged President Yuan Shih Kai to issue a mandate putting into effect a law regarding which the proclamation says that of late the patriotism of the people has been increasing daily, and an opportune time has come to inaugurate an income tax system. The President's proclamation adds that the tax must be paid by merchants, Government officials, bankers and professional men beginning Jan. 1.

Pawn-brokers, shroffs, salt merchants and firms given special privileges by the government shall pay at every year end, incomes under one thousand dollars a year excepted:

Over $1,000 5 per cent is paid while incomes of $100,000 pay 3 per cent and incomes of $1,000,000 pay only 2 per cent. Officials pay at the end of every month as do persons engaged by a firm or corporation. Below fifty dollars a month the salary is exempt.

It is proposed later to extend the tax to persons whose incomes are smaller than those now affected. The minimum income on which the tax will be levied has been fixed at $50 a month.

Japan's Foreign Loans.—In the Japanese press it was reported a few weeks ago, that a number of leading Tokyo bankers entertained a view that it was advisable for the Government to take advantage of the present relaxation in the money market for the conversion of foreign loans, otherwise Japan would find it very difficult to redeem her big loan, when it falls due ten years from now. The *Chugai Shogyo* now reports that an opinion quite opposed to the above prevails among other Tokyo bankers and financiers. These men hold that the war has prevented Germany, England, France and other Powers engaged in the war from being fully engaged in Far Eastern enterprises and has thus given a unique opportunity for Japan to establish an economic and commercial supremacy in this part of the globe. Investment in China, which was prior to the war, subject to competition, is now almost exclusively open to Japan. Turning to home industry, there are yet many things to be developed as may be seen from an example of the proposed manufacture of drugs and dyes. In iron refining, Japan can turn out only 250,000 tons a year, while she has a demand of from 1,000,000 to 1,300,000 tons a year. In railway enterprise, the funds necessary should hereafter be raised from the domestic money market, but not by means of taxation. Under these circumstances, the present plethora of money in the home market can be used very profitably to secure industrial national independence and commercial supremacy in the Far East. There is no need to convert the foreign loan which is not yet due. If Japan could first achieve industrial progress, the payment of foreign loans when due would be an easy matter, in the opinion of these magnates.

Japan's Railway Loan.—Sometime ago the Japanese government decided to issue internal bonds to pay off the £3,000,000 of railway bills which fall due in London in February as it is practically impossible to renew them under present financial conditions. At a meeting of leading Japanese bankers of Tokyo and Osaka at the Bank of Japan to consult with the President of that bank as to the issue of the bonds, the bankers practically all consented to subscribe to the bond issue. No details have been given out as to the terms or rate of interest. It was reported, however, that the 30,000,000 yen bond issue will be divided into three parts; 10,000,000 yen will be issued at the end of November, 10,000,000 yen at the end of January next, and 10,000.000 yen in the early part of February. The issue of Russian treasury bonds to the amount of several tens of millions of yen was not discussed.

Japan Importing Gold.—An Osaka dispatch to the Jiji says that specie to the value of 2,500,000 yen has arrived as the first part of the twenty million yen in gold that is being brought to Japan from foreign countries. According to an authority in the Finance Office, the specie reserve of Japan has increased greatly, principally because of the excess of exports over imports in trade returns and munitions. The specie reserve both at home and abroad has reached 493,000,000 yen.

Industrial Investments of Japan.—According to investigations carried out by the Bank of Japan, the amount of fresh capital invested during October was 32,000,000 yen, of which 5,750,000 yen was for new companies, and 26,253.000 yen for the extension of existing companies. Compared with the previous month, there was an increase of 800,000 yen in the establishment of new companies, and 19,953,000 yen in the extension of existing ones, making 20,753,000 yen in all.

The following table shows the figures of new investments in October duly classified:—

Electric	Y 3,283,000
Fishing	300,000
Railways	2,870,000
Manufacturing	13,850,000
Insurance	11,000,000
Miscellaneous	700,000
Total	Y 32,003,000

It is to be noted that there were no new investments for banking, cotton milling, mining or shipping. However, the increase compared with the previous months shows that a business improvement has set in. New investments during the past ten months amounted to 208,284,250 yen of which 58,833,000 yen was for new establishments, and 149,451,250 yen for the extension of existing ones. Compared with the figures for the corresponding period last year, there was a decrease of 45,302,000 yen in the amount of new promotions, but an increase of 20,034,000 yen in the extension of existing companies.

TRADE AND COMMERCE

Customs Revenue for September.—The Customs Revenue for the month of September last appears to falsify the general belief that the war in Europe, by decreasing the import trade of the country, would entail a loss of Customs Revenue. A comparative statement of the Maritime Customs made up for that month shows a total receipt of Kueiyuan Taels 2,960,000, an increase of Kueiyuan Taels 590,000 over the amount collected for the same period last year. With regard to the Native Customs, approximately Taels 300,000 have been collected for the same period, showing an increase of some Taels 70,000 as compared with the amount from the same source last year. All payments due to foreign countries for account of loans, etc., secured on the Customs have been paid up to date.

Chinese in Hongkong Trade.—Chinese shippers are again securing an increasing share of the export trade of the port, much of which was lost to them in the troublous times following the revolution in China, according to U. S. Consul General Anderson. In 1908, of the 8,353 invoices consulated in this consulate general, covering the shipment of goods to the United States, the Philippines, and Hawaii, 6.776, or 81 per cent of the whole, were from Chinese firms. In 1910 the proportion rose to 82 per cent. In 1911, 1912, and 1913, the proportion of shipments by Chinese firms fell off to a little over 70 per cent. For the first half of the current year the proportion of invoices by Chinese firms has been 78.2 per cent of the whole, as compared with 75.7 per cent of the whole for the same period of last year. One result of the war and the liquidation of the business of German firms in Hongkong is the increasing share of Chinese shippers in export business. It is likely that the same conditions in foreign trade which have impressed upon foreign shippers the desirability of standard export contracts and similar arrangements in time will impress themselves upon Chinese exporters in the same way, but there is little likelihood that the actual enforcement of any standard arrangement can be expected until Chinese exporters have had more experience with the general export trade to the United States and Europe.

British Trade in China.—In his report on the trade of Tientsin during 1914, Mr. D. B, Walker, the British Consul, remarks that while British merchants have no cause to complain of their share in the export trade, it is highly regrettable that import trade is left severely alone by all but two or three firms. Inquiry shows that the determining factors are keenness of competition (German and Japanese), instability of trade occasioned by long terms of credit to Chinese dealers and lack of redress in the Chinese courts for broken contracts. Of these, perhaps, the last is the most serious, but much might be done to increase British participation in the import trade by closer co-operation between banking and commercial houses, by greater combination of manufacturers resulting in facilities for sending out goods on a consignment basis, and by a readiness to sacrifice profits for a term until a firm footing in the market shall have been gained. Three features of German trade are, in the opinion of Mr. H.A. Ottewill, Consul at Chinkiang, largely responsible for its success: the sending of German experts on all possible occasions, and the employment of travellers in the interior; the use of long credits; and underselling.

"The instances which I have in mind as to experts," he said, "are experts who show Chinese using German dyes how to employ them to the best possible advantage; the trade being conducted by German firms at Shanghai through Chinese, the travelling expert keeping in touch with the up-country user; the free use of technical men in all cases in which German machinery is sold; and men who are ready to sell all kinds of military and other gear to the Chinese Government officials. British firms have steadily set their faces against long credits, and it is admitted that the German firms have incurred serious losses on occasions. Personal knowledge and guarantees are the bases on which credit stands. Agencies are probably not very profitable to the firm represented, and the suggestion is made that British firms in similar lines should unite to send out a representative to study the chances of establishing themselves at a large treaty port and of trading up-country."

Machinery for Nagasaki.—Since mining and shipbuilding are carried on to a very considerable extent in the Nagasaki district, reports U. S. Consul E. Carleton Baker, there is an excellent opportunity for the sale of mining and electrical equipment. The principal machinery imported last year at Nagasaki and Moji included steam boilers, locomotives and tenders, steam turbines, dynamos, cranes, pumps, and metal-working machinery. The value of machinery imported to Moji alone exceeded $1,250,000, and the amount brought to Nagasaki was almost $750,000. A great deal of the machinery trade in this district has been in the hands of firms who are unable at present to supply the local demand. The moment, therefore, is most opportune for Americans to enter the field. A consistent and determined effort, however, should be made and every facility should be offered. An engineer should be appointed to work in conjunction with a good English-speaking Japanese engineer and reliable interpreter. They should be selected from the better class of Japanese, who could be received socially by the higher Government officials and the heads of the best Japanese firms. Obtaining contracts in the Orient usually requires elaborate preparations and a series of entertainments, and offices that expect to do a large business should be established on a liberal scale. Details in this regard could be readily arranged with a manufacturer's agent who is thoroughly familiar with local requirements.

Japan's China Trade Decreased.—Reviewing the recent tendency of Sino-Japanese trade as affected by the war the Oriental Economist points out that export to China has decreased to a considerable degree this year while the import trade has remarkably increased in comparison with previous years. The following is the comparative table of exports and imports for the first nine months this year and for the same periods of last year and the year before:

	Export	Import
1913......	Yen 112,643,728	Yen 42,355,970
1914............	„ 127,107,140	„ 41,835,919
1915............	„ 97,859,164	„ 56,960,583

The trade balance for the first nine months last year was some 85,300,000 yen in favor of this country, but the balance this year was only 49,900,000 yen. The cause of this change can be attributed to the depreciation in silver which affected the purchasing power in China. The decrease of exports to China consisted of cotton yarn and textiles, copper, coal and lumber, of which cotton yarn declined to the extent of 20,000,000 yen, copper about 8,000,000 yen and other commodities ranging from 2,000,000 yen to 3,000,000 yen. The increase in imports from China was due to the increase in the import of wool, and this because of the scarcity of stock on the Australian market. The increase in this material was about 3,000,000 yen. The import of iron from China also increased by about 1,000,000 yen. This tendency due to the war, is expected to continue as long as the conflict lasts, but the encouraging feature is that the increase of imports mainly consists of raw material which Japan will turn into various manufactured goods for export to other countries.

During the war year to August Japan's export trade with Asia has expanded by 17,530,000 *yen* till the end of August, mainly because of the active buying from Asiatic Russia, British India, Australasia and the Dutch Indies. Though China began to buy in earnest in August, there is a decline of 32,290,000 *yen* in the share of China proper and Kwantung province and of 4,700,000 *yen* in the share of Hongkong when the total result of the past quarters is compared with the same time last year, the decline being entirely traceable to the general depression of commerce and industry in that country and the agitation against Japan. The prospect for the coming quarter is, however, bright, because the anti-Japanese agitation has already died out and cotton yarn, cotton fabrics, matches, and other articles are now being taken in an ever-increasing quantity.

According to the report of the Finance Department, the exports in the first third of the month of November increased 8,587,000 yen over that of the corresponding period of last year. The total was 22,596,000 yen. Imports increased 4,423,000 yen, amounting in all to 12,910,000 yen. To date, the exports this year show an increase of 78,713,000 yen and a total of 590,904,000 yen. The import decrease is 69,681,000 yen, with a total of 463.190,000 yen, leaving an excess of exports over imports of 127,714,000 yen.

Straits Export Trade.—The return of imports and exports for the second quarter of this year has been published. The grand total shows imports valued at *$108,346,757 compared with $115,217,679 in the same quarter of last year. The figures for the various Settlements were Singapore $80,703,023, Penang $24,895.211, Malacca $2,748,523. Singapore showed an increase of $1,667,622, Penang a decrease of $8,793,175 and Malacca an increase of $254,731. In exports the total for the Colony was $106,478,881 an increase of $11,670,165, of which Singapore increased $14,952,759, Malacca, $1,519,458, while Penang decreased $4,801,501.

Considerable increase appeared in the export of tanned hides which rose fifty per cent to a value of nearly a million dollars. The imports of cotton goods generally declined. Cocoanut oil increased from $500,000 to $900,000 and petroleum from $156,000 to $382,000. Para rubber increased in imports from five million dollars to over ten millions whilst the exports grew from ten millions to eighteen millions. Tin ore imports fell off by about five thousand piculs, the total value being just over nineteen million dollars. The exports of tin however showed an increase and totalled 26½ millions. Pearl tapioca showed a considerable increase in import and export as was also the case with black pepper. Salt imports doubled in value, totalling over three hundred thousand dollars. Opium imports grew from a quarter of a million to well over a million, a matter merely of time of obtaining supplies. Rice imports totalling over twelve millions were two millions short of last year.

(*Straits Dollar, 57 cents gold.)

Burma's Trade in 1914.—The imports for Burma, for 1914, from all countries, dropped from fifty-two million to a little over 40 million dollars. The biggest sufferer was Germany whose imports dropped from 3,800,000 dollars to 1,700,000. The imports of the United States showed an appreciable increase, having risen from 1,900,000 to 2,250.000, and may be said to be the only country of any size to show any increase. This was in a measure due to a larger number of American pipes being purchased for oil-fields.

Japan's Silk Exports.—The export of raw silk to America has increased during the past few months. For the four months from July to October, 61,448 bales of raw silk were exported to America, an increase of 5,464 bales over last year. To Europe 13,054 bales were exported, an increase of 6,914 bales over last year. In comparing the amounts exported to America and Europe in the year before with those of the past four months, there is an increase of 11,055 bales to America and a decrease of 15,000 bales to Europe. The war has had a big effect in the export trade of raw silk, the leading export of Yokohama. The amount of export of this material in Japan, during the first half of this year, was 54,600,000 yen, a decrease of yen 27,210,000 over the same period of last year. This was due partly to the decreasing demand in America and other European countries, especially in France and Italy.

MANUFACTURES AND INDUSTRIES

New Enterprises in Chekiang.—The fact that in Chekiang industry is making wonderful development can be attested by the following data: During the month of September twelve agricultural companies with an aggregate capital of $225,950, while 62 industrial companies with $659,600, sixteen commercial corporations with $618,100, and 36 transportation companies with $1,523,910 capital were registered at the Department of Agriculture and Commerce.

Coconut Products Co. Formed.—The Cooperative Coconut Products company, a purely American enterprise organized for dealing in coconut products and machinery connected with the coconut industry, has been registered at the archives division of the executive bureau. The incorporators of the new firm, which will have its main offices in Manila and conduct business in all parts of the islands, are H. B. McCoy, President of the Colorado Mining Co.; C. H. Sleeper, former Director of the Bureau of Lands; W. L. Applegate, H. W. Beam, and G. C. Sellner, a real estate dealer. The capital stock of the organization is P25,000. C. H. Sleeper has been made treasurer of the company.

India's Cotton Mills Busy.—Cotton mills in India produced 181,000,000 pounds of yarn during the three months, April to June, 1915, compared with 174,000,000 pounds in the 1914 period and 169,000,000 pounds in the 1913 period. Woven goods manufactured totaled 82,000,000 pounds in April-June, 1915, compared with 69,000,000 pounds and 66,000,000 pounds in the corresponding quarters of 1914 and 1913. Most of the yarn spun runs below 26s.

Paper Pulp in Indo-China.—A report from U. S. Consul Lawrence P. Briggs, Saigon, sets forth the condition of two pulp mills of Indo-China as follows: With the industrial development of Tonkin during the past few years, two mills have been established for the manufacture into paper or paper pulp of the abundant supply of suitable wood growing along the banks of the Rouge River and its tributaries.

The Sociéte des Pulpes et Papeteries du Tonkin has its main office at Haiphong, but its mills are located at Vietri at the junction of the Rouge and Claire Rivers. This company was organized in 1910 with a capital stock of 660,000 piasters (a little more than $300,000). Its machinery was imported in 1911 from the United States and Europe, and the factory began to operate in April, 1912. So far this factory has not attempted the manufacture of paper, but has been engaged in the manufacture of pulp from bamboo. Its capacity is said to be 3,000 to 4,000 tons per year. During 1912 the company exported 5 tons of paper pulp to France and 14 tons to Hongkong. The exports to France were largely experimental, and the French manufacturers were well pleased with the product. During the next year 210 tons of pulp were sent to France and 69 tons to foreign countries. The pulp is said to have been very satisfactory and to have sold in the London market for as much as £13 per metric ton ($63.26 per 2,204.6 pounds). During the first three quarters of 1914, 314 tons were exported to France and 22 tons to foreign countries. The outbreak of the war deprived this industry of its French market and high freight rates have closed other European markets to it. Consequently, the mill closed in September and has not since reopened. The subsequent rise in the price of caustic soda has made it impossible to manufacture pulp for less than 110 piastres (a little more than $50) per metric ton f. o. b. Haiphong. The company is ready to resume operations if it can secure an order for 1,500 tons at this price.

The Societe Anonyme de Papeteries de l'Indochine was organized in 1913 with a capital stock of 1,500,000 francs (about $300,000). Its headquarters are at Grenoble, France. Its plant, located at Dap-Cau, near Hanoi, was constructed during 1914 and began operations during the latter part of that year. This plant manufactures paper out of various woods and plants, using only a small proportion of bamboo. The company has had no trouble finding a local market for its product.

New Torpedo Factory.—Advices from Kobe say that the Kobe Steel Foundry has decided to reclaim a tract on the coast at Mirume near Kobe and to build a large factory upon the reclaimed ground. The work was begun on October 24. The new factory will be devoted to the manufacture of torpedoes. The company expects to get an order of 1,000,000 yen annually, from the Japanese Navy and will accept orders from foreign countries as well, after the Navy's demands are supplied. This is said to be the first factory in Japan for the manufacture of torpedoes.

Japan and Russian Shells.—Eight hundred thousand shells for three-inch guns, that the Russian government ordered from the Japanese War Office, are gradually being delivered to the Russian government at 8 or 9 yen each.

The Russian government recently placed with the Japanese army another order for 4,000,000 shells of the same size, too large an order, it is said, for the Military Arsenals at Tokyo and Osaka in the time set by the Russian government. The authorities of the War Office are therefore negotiating with the directors of the Kawasaki Dock at Kobe, the Kobe Steel Foundry and the Ishikawajima Dock at Tokyo to take up portions of the new order. The three companies refuse to take any part of the order at the price which the War Office accepted. They say that since the United States manufacturers are supplying the Russian Army with three-inch shells at about 16 yen, they should get at least 15 yen. It is pointed out that even at that figure, it still would be advantageous for Russia to accept the proposal of the Japanese companies rather than to go to the American manufacturers, because the price of the Japanese is still lower by one yen and besides Russia can economize in the cost and time needed to convey shells from Japan to the front.

Later reports are that a plan is being completed by interested business men for the organization of a big, joint stock company to manufacture munitions. The capital of the projected concern is put at twenty million yen. Whether the government will agree to give any state subsidy or not is an open question, but it is believed that if the government does not give any monetary assistance, it will aid the new concern by supplying experts or in some other way. This would indicate that Russia has met the price.

Dairen's Outputs of Bean Cake.—At present there are 56 bean mills at Dairen, 36 in the city proper and 20 in Hsiaokangtzu. The highest number of pieces of Bean Cake put out by one mill was 7,000 a day, the ordinary daily average being 1,000 pieces. During October the largest number of pieces produced in a day was 55,000 and the lowest 21,000 pieces, the aggregate for the month reaching 858,000 pieces. The figures for the latest three months are:—

August, 430,320 pieces; September, 573,000; and October, 858,000 pieces. "January" Bean Cake on the Fukagawa Bean Cake Market, Tokyo, on November 9, was Y1.21.

Glass Factory for Yokohama.—A new glass factory will be started in Yokohama. Mr. Nakata Keizaburo, backed by leading bankers and business men, has purchased a site at Ratabira Creek covering 25,000 tsubo for the establishment of a large plant. The construction work will start at the end of the month.

Japan to Make Soda.—The proposed establishment of a manufacturing company to make soda, bleaching powder, and other products from Kwantung salt, has been revived of late. A company is to be organized with a capital of Y700,000 wholly paid up.

As this will be the first industrial venture in this line, the promoters were inclined to start it as an experiment and in case of its prospering, the company's capital will be increased eventually to Y3,000,000. The manufactory is to be located at Kita-Fukushima, Osaka, and work will be commenced at the end of the current year. The machinery is to be ordered from the United States. The new factory will consume 8,000,000 *kin* (1.3 lbs) of Kwantung salt, and put out Y600,000 worth of caustic soda, Y300,000 worth of hardened oil, and Y1,100,000 worth of other products at the start. Factories are to be founded later at Kokura and somewhere in South Manchuria so that altogether 30,000,000 *kin* of Kwantung salt may be consumed by the three factories. Later reports say that the scheme has come to a halt. According to an expert, the promoters of the Company intended to adopt the electrical solution system, which, in his opinion, was a radical error. He thinks that the ammonia soda process should be used, since the supply of electricity at home would cost too much and some difficulty would be met with as to the disposal of a large amount of bye-products which will be left as a result of the adoption of the electrical solution system.

Japan to Subsidise Laboratory.—After repeated conferences at the Department of Agriculture and Commerce of government officials and individuals, it has been decided that a chemical laboratory should be established with a capital of 2,000,000 yen, and receive an annual subsidy from the government for some years. It is reported that the government has agreed to give an annual subsidy of 250,000 yen to the new laboratory.